JANUARY 10, 1955

Review and Outlook Issue

BALLWAY AGE

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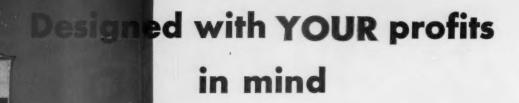
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January 10, 1955

Vol. 138, No. 2

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Running a railroad



depends on



communications.



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depend on



P-A-X
BUSINESS
TELEPHONE

SYSTEMS

Everyone has his problems . . . but often, before a railroadman can solve a problem, he has to find it moving on a split-second schedule somewhere along a network of tracks! "Where?" and "when?" are questions he lives with, hourly and intimately. His answers must be fast—direct—dependable.

On forty-three roads, today, railroad men depend on P-A-X Business Telephone Systems to bring them answers. P-A-X switchboards at key points provide them with the finest in telephone communication.

With P-A-X Telephone Systems, control of operations is close and direct. Maintenance is co-ordinated and improved. Service for shippers and passengers is faster, smoother. Emergencies are reported promptly, dealt with quickly and adequately. Time is saved, methods are more efficient, costs are cut.

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Current Statistics

Operating revenues, eleven months	
1954\$8	572,897,474
1953 9,	848,917,002
Operating expenses, eleven month	3
1954\$6.	755,791,805
1954\$6 1953	438,438,928
Taxes, eleven months	
1954\$	821,549,247
1953	
Net railway operating income, elev	
1954	765,606,661
1953	031,517,291
Net income, estimated, eleven man	
1954\$	
1953	
Average price railroad stocks	
January 4, 1955	86.20
January 4, 1954	
Carloadings, revenue freight	
Fifty-two weeks, 1954	33.862.883
Fifty-two weeks, 1953	38,301,145
Average daily freight car surplus	
December 25, 1954	53,781
December 26, 1953	111,681
Average daily freight car shortage	
December 25, 1954	153
December 26, 1953	135
Freight cars on order	
December 1, 1954	14.805
December 1, 1953	31,869
Freight cars delivered	31,007
November 1954	1.302
November 1953	6,137
Average number railroad employe	
Mid-November 1954	1.035.382
Mid-November 1953	1,188,024
	1,100,024

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE.

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1954: Year of Beginning?

Considered by itself, as a single 12-month period, 1954 must rank as one of the railroads' most discouraging years. Their proportion of the country's total freight traffic dropped to a new low; passenger traffic declined again; earnings and income were down; congressional action was generally adverse.

But 1954 also brought the beginning, or acceleration, of six major and potentially favorable developments:

- 1. Better traffic, and correspondingly higher earnings, are indicated—by the recent improvement in both, and by the high level of business activity generally forecast for the new year.
- 2. Modernized regulation, to replace the old-fashioned laws under which railroads have long been forced to operate, is at least a possibility—thanks to appointment by President Eisenhower of a special Cabinet Committee on Transport Policy and Organization.
- 3. "Piggyback" freight service—currently offered by 23 railroads on more than 16,000 route-miles—may be the answer either to truck competition, or to the problem of coordinating rail and highway services to the ultimate benefit of both, and of the public as well.
- 4. "Competitive" rates— and the determination they reveal to go after traffic where traffic is—may be an even more generally effective weapon against many types of competition.
- 5. "Glamorized" passenger service, by new low-cost, lightweight, ultra-high-speed trains—one ordered and others in prospect—could conceivably increase passenger revenues, cut passenger costs.
- 6. Improving railroad credit—Railway Age's own index of railroad stock prices showed its largest rise in any one postwar year—has meant lower interest rates on equipment trust certificates, facilitated debt refunding and capital reorganization.

Beneath its surface, therefore, 1954 may have been a year, not of discouragement, but of burgeoning promise—a year which, viewed in retrospect, five years from now or ten, may prove to have been the year which marked a major turning point.



Teletypewriter Service helps Pullman play host to 50,000 guests

It takes real organization to play host to 50,000 travelers every night—and good communications are needed for this nationwide job.

The Pullman Company has found that Bell System service is the answer to its communications problems. From a Message Center in Chicago, a private line teletypewriter network reaches out over 9000 miles, affording direct contact with 57 outlying offices.

This puts speed into hundreds of routine chores. It enables Pullman to

give the public smooth service—saves expense in transferring material, operating cars, restoring lost valuables. A tool gets to the shop quicker. A repair goes faster.

"More efficient management of our business is an advantage of the system," a Pullman official says "...in addition to being more economical."

Bell System services can help speed your communications, save you money. Just call your Bell telephone representative for more information.



How messages are speeded

- A 9000-mile nationwide teletypewriter hookup of 9 intercity circuits connects the Chicago Message Center with 57 stations in 46 cities.
- Chicago is the nerve center of the network. Circuits radiate to secondary relay centers in Philadelphia, Atlanta, St. Louis and San Francisco.
- Semi-automatic tape relay equipment is used to speed messages between switching centers and outlying stations.

BELL TELEPHONE SYSTEM



TELEPHONE

MOBILE RADIO

TELETYPEWRITER

INTERCOMMUNICATION AND PAGING SYSTEMS

TELEMETERING AND REMOTE CONTROL

THE RAILROADS' OUTLOOK...

As Railway Age Sees It

With business up and diversion arrested, traffic, earnings and purchases should rise—Big long-term changes presage more favorable status

The level of railroad traffic in 1955 will depend largely on general business conditions. Most business forecasters see "a moderate but sustained business recovery in 1955." Prospects include a gain in construction activity; more spending by consumers; more accumulation and less liquidation of business inventories; and continuation of defense spending at about the current level. Steel makers see gains of 10 to 20 per cent over 1954; automobile production will rise; even coal is looking upward.

Railroads Can Expect . . .

The railroads' share of total freight traffic in 1955 probably will not change significantly. But without any increase in the general business level of the country, the railroads could probably regain up to \$3 billion additional annual revenue from high-rated traffic from trucks and an unestimated but large increase from water lines by rates which take account of the lower cost of handling "wholesale" business.

. . . More Traffic . . .

In 1954 railroads experienced a much more severe decline in traffic and earnings than did most other businesses. Industrial production declined about 7%; "gross national product" about 2½%; and corporate profits (after taxes) some 10%. In contrast, railroad freight carloadings and gross revenues moved down 12% and tonmiles, 10%. Net income plummeted as much as 30%.

Will the railroads continue to perform worse than business in general? Was the greater decline in their volume due to long-term loss of traffic to competitors?

The answer is that diversion has been increasing steadily since 1946, but not at such a rate as to explain the 1954 declines. Further, the drop in carloadings lockstepped with trends of production in the heavy or durable goods industries. The steel industry—so important to rail traffic—declined more in activity than business generally.

Carriers in the eastern district, where durable goods play a more important role than elsewhere, suffered a decline in gross revenues of more than 16% in the first 10 months of 1954, while revenues of roads in the East and South went down between 11

and 12%. Comebacks in coal and in steel have already been experienced, and predictions for 1955 are optimistic.

. . . Better Earnings . . .

Railroad revenues in 1954 declined more than ton-miles or passengermiles. Probable causes of the disparity include:

- (1) Rate reductions to regain traffic;(2) Further loss of high-rated traffic;
- (3) Loss of short-haul traffic relatively greater than that of long-haul.

In 1955: Cause (1) is likely to increase in impact. (Eventually, however, with freedom from traditional "relationships" in rate-making, the railroads can probably offset some rate cuts with rate raises on hard-to-handle freight which nobody else will take.) Cause (2) should decline in importance with realistic rate-making. Cause (3) will probably be influenced favorably by new techniques of rate-making which introduce competitive rate distance blocks, in place of traditional taper-lines.

. . . More Buying, in '55

Given a continuation of the recent upturn in traffic, the railroads' purchases of materials and of capital goods should be higher in 1955 than last year. Like those of most businesses, railroad purchases do not parallel revenue trends exactly. When business declines, buying is cut proportionately more severely. With an upturn, purchasing activity usually outstrips the rise in gross income. Here are some reasons why railroad buying should be up in 1955:

- Material inventories are down substantially.
- Deferred maintenance will force some carriers back into the rail and tie markets.
 Authorized construction projects are
- backlogged.

 Higher wages will force purchase of
- more labor-saving devices.

 The bad order ratio on freight cars is high.
- Fewer new freight cars were installed in 1954 than in any_year since 1939; retirements ran higher; the net fleet is down 40,000 cars.
- Persistent shortages in certain categories of freight cars will force stepped-up car buying and repairing, if traffic is not to be lost by default.
- not to be lost by default.

 Expanding T-0-F-C needs new cars.

 Shipper demand for specialized equipment is increasing.

 Aging of the diesel fleet will require expanded shop facilities and greater activity in replacement components.

tivity in replacement components. The railroads did reasonably well in cost control in 1954. They reduced expenses by 8%, in face of a 12% decline in revenues and 10 and 7% declines, respectively, in freight and passenger traffic. Although their revenues dropped about \$1.3 billion, they held their net earnings (after taxes) to within \$260 million of the 1953 figures.

How "Leverage" Works

This promises well for railroad profits in the period of increased traffic ahead. It takes time for management, under the compulsion of falling revenues, to run a fine-tooth comb through the organization and "cut the fat and maybe some skin." After traffic comes back to its former level, much of the reduced level of expense can be maintained—"thereby," according to one financial analyst, "imparting leverage to the earnings improvement" by which railroad budgets are influenced.

This will mark the eighth consecutive year in which a new high performance record has been established. Daily mileage of locomotives in both freight and passenger service also increased substantially. The mileage of freight cars, on the other hand, declined.

Labor and Inflation

Railroad wages averaged 5¢ an hour higher in 1954 than in 1953. Big demands for further increases, plus more "fringe benefits," are before the carriers, or just around the corner. The full effect of the settlement in August with the non-ops will not be reflected in operating expenses until 1955.

Unions in most businesses seem to

Unions in most businesses seem to expect annual or semiannual increases in "take." Economists like Slichter, recognizing the economy as "laboristic," foresee a steady increase in wage rates and benefits. Some manufacturing industries will be able to absorb some of the impact by mechanizing; the rest of the cost will be "paid for" by continuous, "mild" inflation. Actually there exists in the country no really powerful, articulate force in opposition to inflationary pressures.

Hence, the railroads, which suffer more than most industries from inflation, face the prospect of adapting themselves to more and more of it.

Solid bearing cars earn equivalent of

\$250,000 EXTRA REVENUE PER YEAR

on each 1000 car investment

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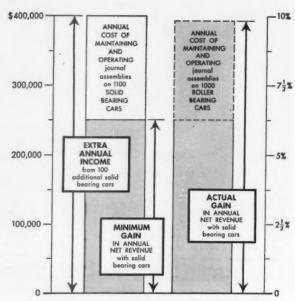
For the same amount of money needed to buy 1000 average roller bearing freight cars, you can buy 1100 or more solid bearing freight cars. And if you want to know what the loss on the roller bearing investment would be, here's a rule-of-thumb to figure it.

First, assuming the extra cars are needed, you estimate their average earnings. Then, from this sum, about \$400,000.00, you subtract the difference, if any, in maintaining and operating journal bearing assemblies on 1100 solid bearing cars as opposed to 1000 roller bearing cars.

Conservatively, you'll find your minimum annual gain with solid bearings to be about \$250,000.00, and it may be as much as \$400,000.00

By the same token, suppose you only need 1000 cars to meet your traffic requirements. With solid bearings, you reduce your initial costs by at least \$600,000.00 and you get the same proportionate increase in return per dollar of car investment represented by the \$250,000.00 to \$400,000.00 above. And since both freight revenues and bearing operating costs are proportionate to car use, this comparative increase in return with solid bearings holds true regardless of traffic conditions.

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ANNUAL NET GAIN IN INCOME WITH SOLID BEARING CARS
In \$ per 1000-car investment
In \$ on any given investment

The left hand column indicates the average extra annual revenue that can be earned by buying 1100 solid bearing cars instead of 1000 roller bearing cars, and the center box indicates the minimum revenue gain that would result if the roller bearings could eliminate all maintenance and operating expense. The actual annual net gain, of course, would be this minimum gain plus roller bearing maintenance and operating costs as indicated in the right hand column.

freight cars. We will also be glad to give you information about ways to improve journal bearing performance. Magnus Metal Corporation, 111 Broadway, New York 6; or 80 E. Jackson Blvd., Chicago 4.



MAGNUS METAL CORPORATION Subsidiary of NATIONAL LEAD COMPAN

THE RAILROADS' OUTLOOK

As the Financial Analysts See It

What investment analysts think of the railroads' future is of special importance to the industry because their attitudes largely influence the state of railroad credit.

Legislation Most Important

The traffic and earnings outlook for the year ahead is not as fundamentally important to the railroads as the need for and prospect of obtaining necessary changes in laws regulating them as common carriers. If the report of the President's Cabinet Committee on Transportation Policy and Organization gives full weight to modern transportation problems and competitive conditions and is backed by constructive suggestions it should receive the full support of the present Administration. With this backing the prospect for favorable legislative action is brighter than has been the case for many years. What may evolve is a greater degree of competitive opportunity and freedom.—Charles L. Bergmann, partner, R. W. Pressprich & Co., and chairman, Railroad Securities Committee, Investment Bankers Association of America.

"Economic Climate" Is Better

As a result of the changed economic climate, gross revenues in 1955 should experience a minimum expansion of 5%. Net income, reflecting better control of operating expenses, as well as cumulative benefits from capital expenditures of over \$10 billion since the end of World War II, should exceed \$700 million, thus providing the background for further possible dividend increases this coming year.—Pierre R. Bretey, railroad analyst, Hayden, Stone & Co.

First Half - Good; Second Half-?

The railroad earnings outlook is clear for the first half of 1955, cloudy for the second half. For the first half year, operating revenues of Class I railroads may be 10% higher than last year; net income may be more than 50% higher.

For the second half year, the railroad earnings picture is less clear—clouded by the possibility of business decline and increased wages. A 5% increase in wage rates (less than 10 cents an hour) would increase railroads' expenses about \$250 million a year.

With larger railroad earnings a definite probability for the first half of 1955, still higher share prices cannot yet be ruled out.—Walter F. Hahn, Smith, Barney & Co.

Eastern Outlook Brighter

Large eastern carriers serving steel mills and the coal industry will do much better and, because of their great size, will have a tendency to lift Class I figures substantially. Most improvement programs will be geared to slim 1954 earnings, as will initial maintenance pro-

grams, with the result that net income will probably show a more pronounced rise percentagewise than gross revenues.—David A. Hill, investment counsellor.

Expense Control Helpful

Based on the strong probability that steel and coal production will be higher in 1955, railroad freight tonnage and revenues should show gains over 1954. This will have a favorable effect on earnings, but even more important is the much better control the railroads are showing over expenses. With bigger earnings, dividends will be better protected and there are likely to be some increases. Rail stocks are likely to be steady to somewhat higher, but not nearly as sensational as in 1954.—Arthur Jansen, partner, W. E. Burnet & Co.

More Highways Mean Less Traffic

At the moment common stocks of western and southern carriers seem to have recaptured their old-time glamor in the eyes of the investing public. On the other hand, the railroads' share of available traffic continues to decline at an alarming pace and the national turnpike and highway program of the Administration may increase this trend. "De-regulation" of the industry by Congress is urgently needed; however, the \$50-billion road plan has the more political appeal.—Joseph T. Small, Paine, Webber, Jackson & Curtis.

Sees Industry Revitalized

The railroad outlook for 1955 is encouraging. We look for a level of traffic somewhat better than 1954, with improved earnings through control of expenses and increased efficiency. Railroad credit in general is gradually being re-established from the virtual collapse suffered following 1946.

Very new and completely modern yards have improved the efficiency of certain divisions so radically that other yard improvements previously considered unnecessary are being pushed to completion. . . . Other recent developments point to an industry revitalized.

—Nelson M. Utley, vice-president, Halsey, Stuart & Co.

Looks for Larger Net

A moderate rise in traffic volume, better control of expenses achieved under difficult conditions of sharply falling traffic during most of 1954, increasing use of new equipment and new techniques in transportation and promise of more equitable federal regulation over rate-making and abandonments are factors leading me to expect a better earnings year for railroads in 1955. I would venture a guess that gross revenues this year should run 5%-10% ahead of depressed 1954 levels.—Edward S. Wilson, manager, research department, Hallgarten & Co.

THE RAILROADS' OUTLOOK

As Railroad Managements See It

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Telegram or Cablegram unless its deferred character is indicated by a suirable
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L'T=Int'l Letter Telegram
VLT=Int'l Victory Lte.

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Here's what we asked them CHOAS ST NYK =

WITH BETTER CARLOADINGS AND BUSINESS FORECASTS DEFINITELY FAVORABLE. PROMISING MORE TRAFFIC IN 1955. IS YOUR RAILROAD REVISING EARLIER PLANS FOR PROPERTY IMPROVEMENT AND EQUIPMENT ORDERS? SUPPLEMENTING QUESTIONNAIRES. WOULD APPRECIATE FOR RAILWAY AGE ANNUAL REVIEW ISSUE YOUR MANAGEMENT'S LATEST APPRAISAL. PLUS IF POSSIBLE. SPECIFIC PLANS MAJOR EXPENDITURES FOR LOCOMOTIVES AND ICARS. PROPERTY BETTERMENTS AND EXPANSION OF FSACILITIES. PLEASE WIRE OR PHONE COLLECT=

Here's what they told us

PRR-Better Earnings

J. M. Symes, president, expects the road's earnings in 1955 to be higher than in 1954. Work on the \$34-million Conway yard is going forward after a delay resulting from the 1954 traffic slump, and completion of the east-bound yard is now scheduled for next September. Development of trailer-on-flat car traffic has required additional loading facilities to cost \$400,000.

C&O-Paperwork Revolution

"The railroad industry is on the way up." That is the optimistic appraisal of the outlook voiced by Walter J. Tuohy, C&O president, who goes on to predict that 1955 "will mark the crossroads of the railroads' recovery." The bottom has been reached in coal's decline, says Mr. Tuohy. "Production in 1955 is expected to climb to 425 million tons from 335 million tons in 1954."

MP-Complete Dieselization

Improvements already authorized for the system for 1955 include 66 diesel road switchers, which will complete dieselization of the entire system, to cost approxi-

mately \$11,000,000; completion of grade revision between Dodson and Martin City, Mo., to cost \$1,286,500; and completion of diesel facility at North Little Rock.

GN-New Yard at Minot

The approved 1955 budget of approximately \$16 million provides nearly \$14 million to carry on this road's track improvement program, which will include 175 miles of new 115-lb rail. Also anticipated is construction of a modern classification yard at Minot, N.D.

T&P-Welded Rail

"It seems reasonably evident," says President W. G. Vollmer, "that (1) business in 1955 will be somewhat better than in 1954, (2) the volume of traffic available to the railroads will show a moderate improvement, and (3) competition for the nation's traffic will grow in intensity." Rail-laying plans include 12 miles of 132-lb and 42 miles of 115-lb rail in West Texas and 24 miles of 112-lb welded rails in Louisiana. The equipment program includes 200 new box cars, 15 cabooses and 38 "outfit" cars for roadway employees.

L&N-Confidence in Future

President J. E. Tilford finds that "improved conditions in the territory served by the L&N appear particularly promising." Based on "abiding confidence in the South's future," this road's capital outlays for improvements since the end of World War II have amounted to \$275 million. "Outstanding appropriations for 1955 now approximate \$14 million, and active consideration is being given to several special projects that, business and earnings permitting, will likely be authorized and prosecuted during 1955."

N de M-Stepped Up Program

Rehabilitation of the National of Mexico will be stepped up during 1955. The approved budget, which totals 246 million pesos (\$19.744 million), provides for additional heavy rail, inauguration of a consolidated freight terminal at Mexico City, construction of terminals at Piedras Negras and Monterrey, and purchase of more diesel power, looking toward complete dieselization of all main lines. Additional construction work is contemplated at the following lines: Chihuahua-Pacific. Durango-Mazatlan, Sonora-Baja California, and Sureste.

B&O-Orders 86 Diesels

Upturn in business has justified placing orders for 86 diesels for delivery in the second quarter of this year. In addition, material has just been ordered for construction of 100 flat cars at the DuBois shops.

SP&S-\$3.5 Million Outlay

The 1955 budget, just approved, provides for a \$1-million outlay for track and track material, buildings, signals and communications, and shop and terminal improvements. Under study is a \$2.5-million program for additional diesel road-switchers.

C of Ga-1955 Will Be Better

Expressing its faith in the future during 1955 in a tangible way, this road has authorized purchase of six diesel-electric freight locomotives, at an expenditure of over \$1 million, and construction of 100 pulpwood cars in Central shops, to cost in the neighborhood of \$300,000. Says President W. E. Dillard, "You may be assured that were it not for a faith that our general economic condition will be on a gentle upgrade during the coming year, no such expenditure at this time would be entertained."

MILWAUKEE-New Equipment

Contemplated expenditure for road improvements will approximate \$9,700,000; expenditures for new equipment and improvements to existing equipment will approximate \$11 million. Latter item includes purchases of 74 diesels, 50 steel box Compartmentizer cars, 30 steel gondolas and modernization of two electric locomotives.

NP-Spending \$28 Million

When Northern Pacific's President Robert S. Mac-Farlane announced a \$28 million program for new equipment and improvements for 1955, it was "based on an estimate that our 1955 business would be somewhat better than in 1954. We are now considering increasing our property improvement program, but no decision has been reached."

PGE-Traffic Up 30% Yearly

This road anticipates traffic growth in 1955 at the same rate as in the past two years, which have shown a rise of over 30% per annum. It proposes to buy 25 flats and 25 gondolas. It plans to replace 50 mi of 60-lb rail with 85-lb and to ballast 50 mi of track this year. Grading and bridge work on Squamish-to-North Vancouver extension of 41 mi will proceed, also clearing and grading on first 65 mi north of Prince George on Peace River extension.

RF&P-Yard Improvement

Studies now under way for improvement of yard facilities are not definite enough at present for detailed comment. At Potomac Yard a TV installation is being completed to take car numbers of northbound trains.

F. C. del PACIFICO-New Railroad

This road's plans for this year call for gross investment amounting to 316 million pesos, or over \$25 million. "We expect to lay 440 km of new 100-lb rail, one million ties, and 310,000 cu meters of ballast. Equipment additions will include 12 diesel locomotives, six road-switchers and six switchers. Other major items are improved communications, bridges and road machinery."

WABASH-\$1 Million for Yards

President Arthur K. Atkinson anticipates better carloadings. Earli r plans have been revised upward to include 44 miles of CTC, to cost \$600,000, and expansion of yards involving an outlay of \$1 million.

MONON-More Radio

President Warren W. Brown predicts gross revenues slightly higher than in 1954, when Monon's results were "much better than the national average." Net income is expected to be "about the same." This road plans to lay 10 miles or more of new rail in 1955, with total capital improvements running to \$380,000. Another improvement will be "considerable expansion of present train radio equipment."

ERIE-Improvement Ahead

"The adjustment period we experienced in the past year is now over and every indicator of business health points to improvement ahead," says President Paul W. Johnston. "We expect our earnings in 1955 to show a satisfactory increase over 1954. There are many indications that point to optimism for the future, including a steady advance in our standard of living."

READING-New Line

Work will be completed during 1955 on a new line from Laureldale to Blandon, Pa., 3.36 miles, and regrading of existing alinement of 1.9 miles of present Schuylkill and Lehigh branch, to provide a new low grade route of 5.3 miles. Total cost will be approximately \$2,225,000.

November Net Up \$16 Million

This was first increase above same month of previous year since August 1953—Eleven months net, at \$547 million, was off \$252 million

Class I railroads in November 1954 had estimated net income, after interest and rentals, of \$76,000,000, up \$16,000,000 from November 1953's \$60,000, 000, according to the Bureau of Railway Economics of the Association of American Railroads. This was the first time since August 1953 that a monthly net was higher than that of the same month in the preceding year.

November's net railway operating income, before interest and rentals, was \$94,118,054. That compared with November 1953's \$78,526,183.

Eleven Months' Results-For last year's first 11 months, estimated net income was \$547,000,000, down \$252, 000,000 from the \$799,000,000 reported for the same period of 1953. Net railway operating income for the 11 months was \$765,606,661, compared with \$1,031,517,291.

Gross in the 11 months amounted to \$8,572,897,474, compared with \$9,848,-917,002 in the same period of 1953, a 917,002 in the same period of 1936, a decrease of 13%. Operating expenses amounted to \$6,755,791,805, compared with \$7,438,438,928, a decrease of 9.2%

Twenty-five Class I roads failed to earn interest and rentals in last year's first 11 months, of which 12 were in the Eastern district, four in the Southern region, and nine in the Western district.

In the 12 months ended November 30, the rate of return averaged 3.16%, compared with 4.32% in the 12 months ended November 30, 1953.

34 Million Cars Loaded in 1954; 11.6% Below 1953

Loadings of revenue freight on Class I railroads totaled 33,862,883 cars in 1954, according to the Association of American Railroads. This was a decrease of 4,438,262 cars, or 11.6 per cent, compared with 1953. Carloadings by commodities in 1954 as compared with 1953 were as follows:

6 Inc.
Doc
Dec.
Dec.
Dec.
Dec.
Dec.
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Dec.

Loadings of revenue freight for the week ended December 25 totaled 561,-079 cars; the summary, compiled by

the Car Service Division, AAR, fol-

REVENUE F		day, Decen	aber 25
District Eastern Allegheny Pocahontas Southern Northwestern Central Western Southwestern	1954 95,535 104,782 40,147 103,389 65,734 100,893 50,599	1953 85,849 95,820 33,947 87,099 53,864 81,693 42,706	1952 94,591 114,195 32,345 90,644 57,045 87,941 43,939
Total Western Districts	217,226	178,263	188,925
Total All Roads	561,079	480,978	520,700
Commodities: Grain and grain products Livestock Coal Coke Forest products Ore Merchandise I.c.I. Miscellaneous	41,167 5,932 110,376 8,734 37,930 13,231 55,782 287,927	29,665 4,946 97,235 9,255 29,166 14,182 47,639 248,890	32,202 5,914 91,112 14,231 30,828 17,229 53,774 275,410
December 25 December 18 December 11 December 4 November 27	561,079 641,871 653,531 661,797 583,515	480,978 618,434 651,951 662,026 596,230	520,700 710,390 721,342 719,324 670,371

Cumulative total 52 weeks ...33,862,883 38,301,145 37,985,155

In Canada.—Carloadings for the seven-day period ended December 14 totaled 71,296 cars, compared with 74,-998 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

			Cars Loaded	Rec'd from Connections
Totals for C	anad	CI:		
December	14.	1954	 71,296	27,989
December	14.	1953	 71,787	27,994
Cumulative	Total	5:		
December	14	1954	 3,538,660	1,357,470
December	14,	1953	 3,840,233	

CLASS I RAILROADS-UNITED STATES

Month	of November	
- 1	1954	1953
Total operating rev-	793,015,200 \$	832,363,04
Total operating ex- penses	597,012,682	657,496,44
per cent Taxes Net railway operat-	75.28 81,489,519	77,582,36
ing income (Earn- ings before charges) Net income, after	94,118,054	78,526,183
charges (estimated)	76,000,000	60,000,000

Eleven Mont	hs Ended Nove	mber 30
Total operating revenues		\$0 848 017 002
Total operating ex-	40,012,011,414	47,040,717,002
Operating ratio-	6,755,791,805	7,438,438,928
per cent	78.80	75.53
Net railway operat- ing income (Earn- ings before	821,549,247	1,162,856,463
Net income, after	765,606,661	1,031,517,291

547,000,000 799,000,000



THESE NEW SLEEPERS - two of four of the six-section, six-roomette, four-double-bedroom type recently built for the Boston & Maine by the Pullman-Standard Car Manufacturing Company—were widely exhibited in B&M cities last month. All four are now in service, along with similar cars for the New Haven and the Bangor & Aroostook, on the "Gull," hetween Boston and Van Buren, Me., Saint John, N.B., and Halifax, N.S., and the "State of Maine," between New York and Portland, Me.

Pennsylvania Expands "Piggyback"

Will haul trailers for common carrier truckers, beginning February 1, in collaboration with Rail-Trailer Company

Inauguration by the Pennsylvania on February 1 of a new form of "Truc-Train" service, to provide rail transport for highway trailers of common carrier truck lines between New York and Chicago, and Philadelphia and Chicago, has been announced by James M. Symes, president. Two hundred especially built flat cars, each 75 ft long, will carry the trailers in pairs on the railroad's fastest merchandise trains, with evening departures and early second-morning arrivals at all three terminals, he said.

As predicted in Railway Age, November 15, page 5, the new service will be instituted in collaboration with the Rail-Trailer Company, of which Eugene F. Ryan is president, to develop the potentialities of such a service. As business expands it is planned to inaugurate schedules using freight trains providing TrucTrain service exclusively, Mr. Symes said. Rail-Trailer, as an independent contractor, will act as liaison between common carrier truck operators and the railroad, and will also manage trucking operations,

WHY NOT ALLOW PRIVATE ENTERPRISE TO BUILD AND MAINTAIN HIGHWAYS?

"We will never solve by any public planning or tax financing the present problem of highway needs created by 53,000,000 motor vehicles—much less anticipate and forestall the traffic problem to be created by 80,000,000 motor vehicles which experts predict will ride the highways in 1975. The answer is obvious. . . We should allow private enterprise the right to build and maintain highways."

So argued John E. Mulroney, justice of the Supreme Court of Iowa, in a carefully reasoned article in the November issue of The Freeman, in which he expounded the thesis that private enterprise can solve "the urgent problem of planning and financing modern highways for growing motor traffic."

"Rightly viewed," Justice Mulroney said, "highway motor transportation is one machine divided into three parts: the motor vehicle, the fuel to run it, and the highway on which it is to travel. . . . Two-thirds of it are supplied by private enterprise and one-third is government owned and controlled.

"The automotive industry . . . poured forth . . . an ever-better product, capable of rendering ever-better service at ever-decreasing costs. The petroleum industry kept pace. . . But . . . the two private enterprises in the trinity have far outstripped the third. . . . The government-owned element of the highway motor transportation machine began to fall behind. It simply could not keep abreast of the rapid changes. This is no fault of government; it is just that government is always at a disadvantage in the field of progressive industries. . . .

"Let there be highway public service companies—private or investorowned, but possessing appropriate franchises from the state to construct and maintain highways on the basis of public convenience and necessity, with the right of eminent domain and the right to charge reasonable rates for travel thereon. These should be regulated, like all public service companies."

His proposal, the Iowa jurist emphasized, "would aid existing public highways by allowing for additional highways built with private capital." He would not turn present public highways over to such a company to operate for profit; nor, he said, does the plan necessarily contemplate elimination of any presently existing public

He conceded that private highways would "take a tremendous outlay of capital," but argued that "no private enterprise remained unborn in this country because the capital expenditure was large." People, he believes, "will patronize the public service company highway because the company, like any other private enterprise, will strive to make its service attractive to customers. . . . It is fairly certain the traveling public would pay for travel on private highways an amount at least equal to present charges" on toll roads. "They might pay more, It is possible a highway service company could make a profit on a lesser charge."

Railroads, said Justice Mulroney, should be allowed to qualify as highway public service companies, because of their ability, in many locations, to build highways over tracks or along abandoned rights-of-way. including loading and unloading, at new terminal facilities being provided by the railroad.

"This new type of TrucTrain service for highway trailers of common carrier truck lines should provide the Pennsylvania with profitable new business, as well as increase overall speed and dependability for truck operators at attractive charges," the PRR president also said. He added that:

"We are inaugurating a type of service in which everyone concerned should make worthwhile gains. The new service is the result of months of consideration of problems involved, including the kind of equipment to be used and design of terminals to handle the business."

Terminal facilities are under construction at Meadows yard, Kearny, N.J., across the Hudson river from New York City, and at 55th Street yard, Chicago. They include additional tracks, ramps for end-loading and unloading trailers, scales, and trailer parking areas. The cost of the two projects will be about \$400,000. At Philadelphia the new service will be handled for the present with the same Kensington yard facilities installed for the present type of TrucTrain service.

At the outset the new service will provide evening departure from Meadows yard on LCL-1, the PRR's swiftest merchandise train to Chicago, arriving in 55th Street yard there in time for delivery before the start of business on the second morning. Eastbound, trailers will be carried on LCL-2, the companion train to New York, also with evening departure and early arrival the second morning. Philadelphia-Chicago trailers will be dispatched on the same trains, their cars being picked up and set off en route.

Mr. Symes said truck operators using TrucTrain service will pay railroad charges based on distance hauled and gross weight of trailer and load. Charges to and from Philadelphia will be in proportion to the shorter haul. Truck operators will pay Rail-Trailer for loading and unloading services to and from rail cars at terminals.

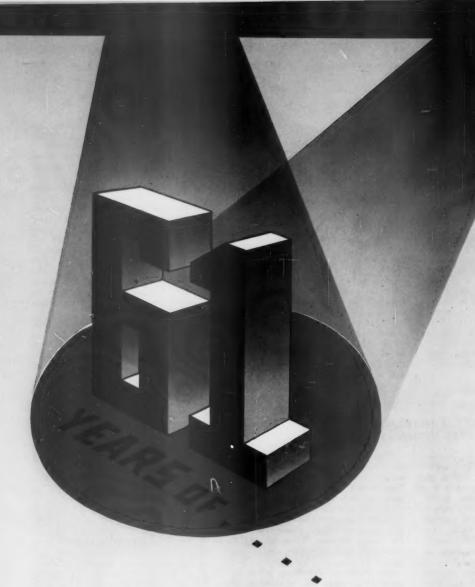
Traffic

U. S. Chamber Reports on Transport in '54, '55

The railroads' share of the nation's total freight traffic last year went below 50% for the first time, according to a summary prepared by the Transportation and Communication Department, Chamber of Commerce of the United States.

With the railroads hauling approximately 550 billion ton-miles of intercity freight, a drop of 10% from 1953, the summary states, their share of 1,106 billion total ton-miles was 49.8%.

Contrasted with this, the summary



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reports, the truck industry hauled the same total as in 1953—208 billion tonmiles, with a resulting increase in its share of the total traffic, which was down 7% from the peak year of 1953. "The barge and petroleum pipe line industries, however, continued to chalk up all-time high tonnages," the Chamber of Commerce reports. The pipe line tonnage was up 2% to 169 billion ton-miles and the barge lines hauled 80 billion ton-miles, or 7% more than in 1953.

The summary also notes that "unregulated carriers operating in the truck and barge fields showed traffic gains" while regulated carriers showed declines.

The report states that rail passenger traffic was also down—by 7%—while air coach service accounted for one-third of the total domestic passenger-miles.

Railroad capital expenditures, already down 36% from 1953, were expected to drop 31% below the 1954 figure of \$800 million.

A note of optimism was sounded in the chamber's comments on "piggy-backing" which, it said, was at first "far short of expectations" but had recently shown "encouraging growth." The report stated that "at least 100,000 trailers" were expected to be carried during 1954.

People in the News

Lester N. Selig Elected President of Car Institute

The American Railway Car Institute has elected Lester N. Selig, of Chicago, as president. Mr. Selig, who will serve without compensation, succeeds Gustav Metzman, who has retired after serving two years as full-time head of the institute.

The new president of ARCI has spent his entire business life with General American Transportation Corporation. A native of Brooklyn, he began as a workman in the shops of the company of which he is now chairman of the board.

Doolan Named to New York Civil Defense Commission

The Associated Railroads of New York State have appointed J. Frank Doolan, retired executive vice-president of the New York, New Haven & Hartford, to serve, without cost to the state, on the staff of the state's Civil Defense Commission as assistant chief of transportation, for railroads. He reported December 27 to Col. Robert L. Johnson, the commission's chief of transportation.

Mr. Doolan will carry forward the commission's plans for emergency mo-

bilization of equipment and personnel of all rail lines within the state, in time of emergency or enemy attack. These include transportation of injured and homeless, deployment of survivors as auxiliary workers, movement of supplies to devastated areas, and "piggyback" transportation of fire equipment, trucks, and other automotive emergency equipment. Each of the 11 major target areas in New York state either now has, or will soon complete, a detailed local area plan for the emergency utilization of railroad equipment and personnel located within their areas.

Mahaffie Must Fight To Stay on the ICC

Charles D. Mahaffie's continuance as a member of the Interstate Commerce Commission seemed last week to depend upon his disposition to go to court on the question of whether the federal government's general retirement-at-70 rule overrides the specific-term provisions of the Interstate Commerce Act.

Mr. Mahaffie, whose latest ICC term was scheduled to expire December 31, 1958, became 70 years of age December 5; and the White House announced on January 3 that he had retired under the general rule as of December 31. The general rule's requirement is that government employees must retire at the end of the month in which they become 70, unless they are exempt by Presidential order.

Legal Question—The White House announcement left unsettled the legal question which has been raised on the basis of contentions that, when the President appoints a person to a specific term which runs through that person's 70th birthday, the President is presumed to have known the appointee's age; and, thus, the appointment carries exemption from the compulsory retirement rule until the end of the term involved. (Railway Age, October 4, 1954, page 12.)

Commissioner Mahaffie came to his office at the commission on the morn-

ing of January 3, but left before noon of that day. After the White House announcement, he told a Railway Age reporter that he had not decided whether he would contest the retirement.

Tuggle Term Expired — Meanwhile, the tenure of Commissioner Kenneth H. Tuggle also became uncertain on December 31, when his term expired. However, he will continue to serve under provisions of the Interstate Commerce Act which stipulate that a commissioner in office may continue to serve beyond the end of his term until his successor qualifies. Mr. Tuggle told Railway Age last week that he was confident of reappointment.

Public Relations

"The Most Mail for The Least Money"

In an effort to present to press and public facts concerning railroad handling of mail traffic on a nationwide basis, the Association of American Railroads has prepared and is currently giving wide distribution to a new brochure entitled "The Most Mail for the Least Money."

Using numerous pictures and a minimum of text, the 16-page (plus cover) booklet points out that "Moving mail by rail means:

• "To the Post Office Department—lower handling costs, lower transportation charges and less investment of public funds in mail-handling facilities;

 "To the taxpayers—lesser postal deficits to be met out of tax funds—the only intercity mail on which the department consistently makes a profit is first-class surface mail:

surface mail;

"To the users of postal service—economy, convenience, dependability;

 "To the public—less congestion on the highways, built and maintained with tax money; and

• "To the nation—stronger railroads to meet the needs of commerce and the demands of defense."



TYPICAL FLAT CAR UNDERFRAME, supported by shop trucks—100 such underframes were ordered recently from the Greenville Steel Car Company by the Baltimore & Ohio, which

plans to enlarge its piggyback facilities. Greenville will start building the underframes late next February. The cars will be completed in the B&O's Dubois, Pa., shop.

How Funds Value Rails

Carrier securities worth \$434.5 million represent eight per cent of assets of 137 investment companies

Securities of 98 railroads, having an aggregate market value of \$434,534,-000, are included in portfolios of 137 closed-end and open-end (mutual fund) investment companies, according to a recent study by the National Association of Investment Companies. The rail securities represent nearly eight per cent of the funds' total assets.

Common Stock-The most popular type of railroad security with investment funds, from the standpoint of value, is common stock, which accounts for \$235,675,000, or 54.2%, of total holdings. Such holdings, however, are concentrated in common stocks of only 37 railroads. Santa Fe common with a market value of \$37,188,000 is distributed among 37 companies, while 39 funds own Southern Pacific common stock worth a total of \$22,430.000.

Preferred Stock-Preferred stocks of 36 railroads, valued at \$38.547,000, represent 8.9% of all investment company railroad holdings. In this classification, the highest market value is the \$3,724,000 of Nickel Plate preferred divided among six funds, but the widest distribution is in Frisco preferred, of which \$2,474,000 is owned by 16 funds.

Bonds—Bonds amounting to \$160,-312,000 account for the remaining 36.9% of railroad securities owned by investment companies, but they are the most widely held type of security, bonds of 78 railroads being included in the 137 portfolios studied. Dollarwise, the Missouri Pacific tops the bond list, with \$14,617,000 of its debt securities divided among 13 investment company holders. Baltimore & Ohio however, are most widely owned, \$12,282,000 of them being distributed among 24 investment funds.

TWENTY LARGEST RAILROAD HOLDINGS

(Based upon aggregate holdings of all classes of securities)

	Amount*
Atchison, Topeka & Santa Fe	
Southern Pacific	
Seaboard Air Line	
Illinois Central	
Southern	
Union Pacific	
Mosthern Basifi-	15,255
Northern Pacific	13,233
Erie	14,680
Missouri Pacific	14,617
Baltimore & Ohio	14.177
Chicago, Rock Island & Pacific	13,158
N. Y., Chicago & St. Louis	12,180
Louisville & Nashville	11,809
Atlantic Coast Line	10,400
Gulf, Mobile & Ohio	9.696
Chesapeake & Ohio	8.727
N. Y., New Haven & Hartford	7,956
Missouri-Kansas-Texas	7,829
New Orleans, Texas & Mexico	7,386
New York Central	
New York Central	6,263
TOTAL HOLDINGS—Securities of 98	\$434.534

In market values as stated in latest available financial reports of member companies.

Pennsylvania Changes **Accounting Procedures**

Several changes in accounting methods that will alter present procedures of the Pennsylvania "to more clearly portray financial results," have been announced by David C. Bevan, financial vice-president.

One concerns year-end dividends received from subsidiary companies. For a number of years dividend payments by the Pennsylvania Company, a wholly owned subsidiary, have been made in December, which resulted in inclusion of the entire amount in the Pennsylvania Railroad's income statement. Commencing this year, it is planned to include in "Other Income" monthly, one-twelfth of the estimated annual dividend from the Pennsylvania Company. This will conform to the practice with respect to normal dividends which, along with other non-operating income and fixed charges,

are estimated at the beginning of each year and spread evenly over the months, changes being made from time to time as the year progresses. Figures for 1954 will be restated for comparative purposes

The second change involves amounts written off each year covering operating deficits and other advances to certain affiliated roads. In the past the income statement has reflected these amounts as "Appropriations of Inamounts as Appropriations of In-come," but not as a charge in arriving at net income. They will be shown, beginning with the December 1954 monthly statement, as "Miscellaneous Deductions from Income"-and will constitute a charge before arriving at net incom?

The third change covers income received on securities held by the managers of the Trust of 1878. This trust fund was originally established as a reserve to protect the railroad with respect to its guaranty of certain se-curities of its leased lines. Today the income of the trust is currently used for acquisition of leased lines' stocks or other obligations of the Pennsylvania Railroad system. The income to the fund has in the past been deducted before arriving at net income and shown as "Other Deductions." Beginning in December 1954, this amount will be treated as an appropriation of net income and not deducted before arriving at net income.

Baltimore & Ohio.-Lease Modification.—This road has applied to the ICC for authority to modify its lease of the Dayton & Michigan by changing the rental agreement so no dividends will be paid on D&M stock held by the B&O or its nominee. Rental has been based largely on dividends and the change would save the B&O \$27,-100 annually in rental and taxes.

Erie.—Purchase of Two Subsidiaries.-This road has been authorized by the ICC to purchase the Goshen & Deckertown and the Montgomery & Erie. Both the G&D and the M&E are controlled by the Erie through stock ownership.

Grand Trunk Western .- Merger of Subsidiary.—This road has applied to the ICC for authority to merge into (Continued on page 184)

TEN LARGEST RAILROAD HOLDINGS BY SECURITY TYPES, With Number of Investment Companies Holding Each Type of Security

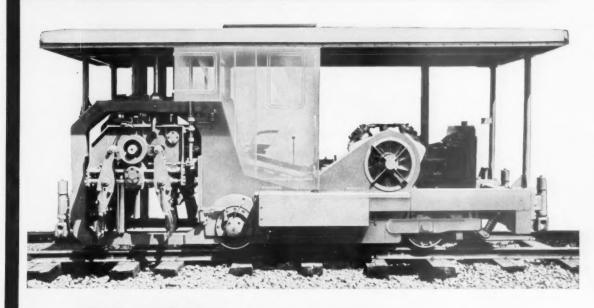
BONDS		PREFERRED STOCKS	
No. of Holders No. of Holders	Value* (in 000's) \$14,617 12,282 7,645 7,386 6,900 6,636 6,005 5,804 4,582 4,463	No. of Holders No. of Holders	Value* (in 000's) \$ 3,724 3,335 2,884 2,474 2,392 1,901 1,864 1,820 1,809 1,726
Total Band Holdings of 78 Rail- roads	\$160,312	Total Preferred Stock Holdings of 36 Railroads	\$38,547

^{\$160.312} In market values, as stated in latest available financial reports of member companies.

COMMON STOCKS

Atchison, Topeka & Santa	No. of Holders	Value* (in 000's) \$37,188
		28,675
Seaboard Air Line		
Southern Pacific	39	22,430
Illinois Central	21	20,340
Union Pacific	21	19,761
		- 14,601
Southern		
Chicago, Rock Island & I	Pacific 28	12,143
Northern Pacific		10.792
Atlantic Coast Line		9.790
Louisville & Nashville	16	8.595
Total Common Stock Ho of 37 Railroads		\$235,675

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B-24 TAMPER

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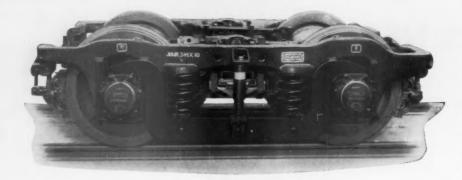
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When you consider replacing worn-out,

heavy weight head-end cars, Commonwealth BX type trucks offer outstanding advantages in economy and performance. Design includes equalization, swing-motion and one-piece cast steel truck frame with pedestals cast integral to insure perfect alignment of wheels and axles.

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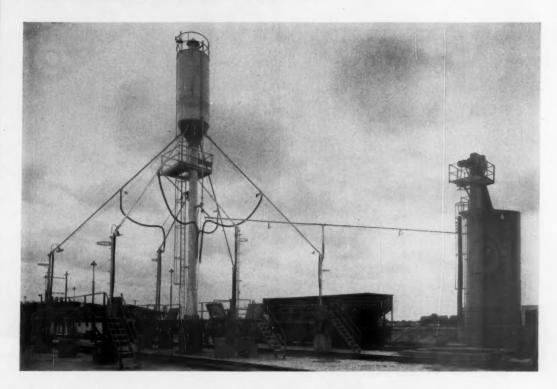


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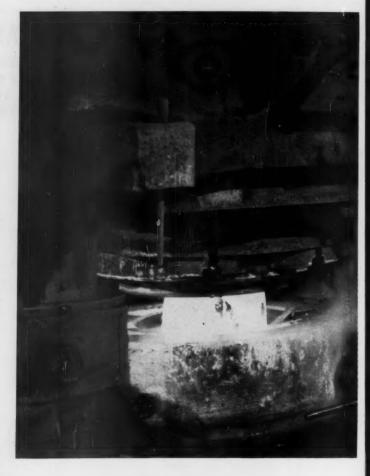
OBSERVE
FIRST ENTIRE
DISCHARGE
OF DRY SAND
BIN — DUE TO
INCLINE
BIN FLOOR

OUR REPRESENTATIVES:

Railway & Power Engineering Corp., Ltd., Toronto-Montreal Wonham & Co., 44 Whitehell St., New York City-Foreign only Gordon H. Proffitt, 215 Market St., San Francisco S, Calif. Fuchs Mchy. & Supply Co., Omeha, Nebr. Everett G, Parmele & Co., Dallas, Texas

Dick Jacobs Co., 19499 James Couxens Highway, Detroit.

"THE BIG COULETT" JULELL



puts thousands of extra miles into every

WROUGHT STEEL WHEEL

That block of hot steel is under 14,000,000 pounds pressure! Yet, only a few effortless seconds are required for the huge press to descend and rise—just a few seconds, and a red-hot wheel blank is hoisted from the die. Thus, the first forging takes place in the life of a USS Wrought Steel Wheel.

Basically, steel possesses the inherent properties of hardness to resist wear, strength to withstand heavy loads, and ductility to minimize sudden brittle fractures. This excellent combination of properties is improved by forging, rolling, and controlled-cooling, imparting to the finished Wrought Steel Wheel an extremely high degree of soundness and dependability.

But what does the Wrought Steel Wheel do for you?

- IT LASTS LONGER... USS One-Wear Wrought Steel Wheels will average 200,000 to 300,000 miles or more in normal freight car service.
- IT COSTS LESS... Its far greater life in any given service will reflect a substantially lower cost than that of the ordinary wheel, even though, initially, the One-Wear Wrought Steel Wheel costs a little more than the ordinary type wheel.
- REQUIRES LESS MAINTENANCE . . . Rolling on One-Wear Wrought Steel Wheels, a car spends more time in service, and less time on repair sidings, resulting in increased revenue to the railroad. Also, less frequent repair means reduced maintenance and lower labor costs.
- SAVES UNSPRUNG WEIGHT... Because they are lighter than ordinary wheels, eight Wrought Steel Wheels under a 50-ton capacity car will save approximately 1,520 lbs. of unsprung weight, which can be directly converted into payload capacity—or result in a fuel savings due to the decreased load. Furthermore, reduced unsprung weight means less pounding on the track system.

Two strategically located complete wheel shops are ready to fill your orders for *Wrought* Steel Wheels: McKees Rocks (Pittsburgh), Pennsylvania, shop, serving the East and Southeast, and the Gary, Indiana, shop supplying the Western and Southern Lines.





USS WROUGHT STEEL WHEELS

UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.



COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO UNITED STATES STEEL EXPORT COMPANY, NEW YORK

-1294

UNITED STATES STEEL





Clear plastic window indi-cates need for refill. Dixie adapters are easily changed to permit the use of flat-botrom or cone-shaped Dixie Cups.



Takes minimum space in room-ettes, compart-ments, wash



That's because only Dixie offers over 42 years of specialized experience in servicing the railroad industry! Dixie's exclusive "know-how" solved the demands of every railroad and customer by developing an extra firm, dripless and dependable water cup. No wonder Dixie sets the standard on most leading railroads everywhere. Depend on Dixie's complete variety of Dispensers and Cups, in either cone or flat-bottom styles to satisfy every need, every traveler!

YOU'LL FIND WHATEVER YOU NEED IN DIXIE'S COMPLETE LINE







For further information contact: Transportation Dept. DIXIE Cup Company Easton, Pa.

DIXIE IS A REGISTERED TRADE MARK OF THE DIXIE CUP COMPANY

New H Team Provides POWER for PROGRESS



Two 2-wheel, rubber-tired tractors with scrapers and bottom dump wagon



Eight diesel and carbureted crawler tractors with 4 matched scrapers for the TD-24 and TD-18A.



Here's the great new INTERNATIONAL team that delivers low-cost tractor power for every railroad requirement: 8 crawlers, 2 two-wheel, rubber-tired tractors with scrapers and bottom dump wagon, 26 INTERNATIONAL cable and hydraulically controlled bulldozer and Bullgrader® blades, 4 Skid-Shovels that outlift all others by 300%, employing Skid-Shoes and exclusive pry-out action, a versatile mowing tractor and 18 dependable diesel and carbureted power units.

Each INTERNATIONAL equipment combination is a unit that solves your embankment restoration,

cuts cleaning, drainage, mowing, shop or yard problems fast and with a minimum of manpower.

Let your INTERNATIONAL Industrial Power Distributor show you what we mean with an on-thejob demonstration at your convenience with the INTERNATIONAL equipment of your choice.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



185,000 freight cars have been built

93,000 BOX CARS

44,000
HOPPER CARS

19,000
REFRIGERATOR CARS

29,000
GONDOLA CARS

better with USS COR-TEN Steel since 1933

Hooked up end-to-end, the COR-TEN Steel cars built to date would form a freight train more than 1,400 miles long

Traveling at 50 miles per hour, this 185,000 car train would take more than 28 hours to pass a given point.

Truly these are impressive figures. But more impressive still is the fact that every car in this train represents a source of increased revenue and has played a vital part in reducing operating and maintenance costs for its owners.

Here is an imposing array of box cars and refrigerator cars that have been built substantially lighter with USS Cor-Ten Steel. In these lighter cars, which can carry more payload and cost less to haul empty, the proved corrosion resistance of Cor-Ten Steel reduces maintenance costs.

Here are thousands of hard working hopper cars in which Cor-Ten Steel, even when used in the same thicknesses as normally used for carbon or copper steel, pays for itself many times over by drastically reducing maintenance costs. First, by saving the cost of one heavy repair and second, by saving the time such repair involves. The proved ability of Cor-Ten Steel to reduce corrosion dam-

age is the prime reason for this and is due to the fact that USS Cor-Ten Steel resists atmospheric corrosion 4 to 6 times better than carbon steel.

Cor-Ten Steel's superior corrosion resistance also pays off in the gondola cars, where its higher yield point (1½ times that of carbon steel), its 50% higher fatigue strength and its greater resistance to abrasion and impact all combine to keep down maintenance expense and to prolong car life.

And here's something else worth thinking about. Most of these 185,000 Cor-Ten Steel cars, operating on many of the major railroads in America, have been built on repeat orders—after the first cars bought had shown in service how much better they perform.

It is on this basis of proved superior service that railroad men all over the world, not only here but in Canada, in South and Central America, in Australia and Africa, just naturally think of COR-TEN Steel construction when they are shopping for the best in freight equipment.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO

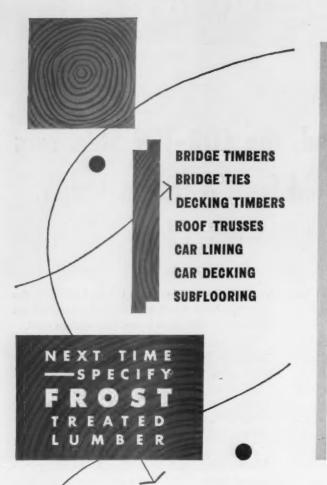
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

See "THE UNITED STATES STEEL HOUR"—Televised alternate weeks—Consult your newspaper for time and station.



4-2298



Industrial users of Frost "Wolmanized" lumber report substantial economies through its use. Service records conclusively prove that Frost "Wolmanized" lumber lasts from three to five times as long as ordinary wood.

Over a billion feet of "Wolmanized" lumber is in use . . . yet in a survey of installations ten to fifteen years old only two-tenths of one percent has

had to be replaced because of decay.

Frost "Wolmanized" lumber has gained increasing popularity with railroad people for platform decking, terminal wharves and ice loading platforms. The reasons . . . durability, fire safety, paintability and avoidance of contamination. Its record of service supplements and complements Frost creosoted ties, timbers and piling.

Next time mark your order FROST!



FOREST PRODUCTS DIVISION OLIN MATHIESON CHEMICAL CORPORATION.

SHREVEPORT

LOUISIANA



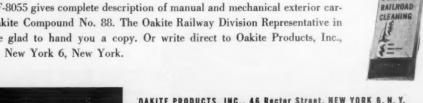
The Atlantic Coast Line's crack units keep that "Just-Cleaned" look with Oakite Compound No. 88

By happy circumstance the perennial well-groomed appearance of The Atlantic Coast Line's crack units is entrusted to Oakite Compound No. 88 and for this important reason:

Oakite Compound No. 88, when applied to the purple, silver and gold trim of The Atlantic Coast Line's coaches and diesel-electrics even the most stubborn, color-dulling traffic film is safely removed, leaving these delicate tints intact and gleaming.

Oakite Compound No. 88 is a scientifically formulated coach-washing compound designed to clean swiftly yet safely. Its energetic wetting-out action provides deep penetration of soils for quick removal. Its complete rinsability assures film-free painted surfaces and streak-free windows.

FREE Booklet F-8055 gives complete description of manual and mechanical exterior carwashing with Oakite Compound No. 88. The Oakite Railway Division Representative in your city will be glad to hand you a copy. Or write direct to Oakite Products, Inc., 46 Rector Street, New York 6, New York.



DAKITE PRODUCTS, INC., 46 Rector Street, NEW YORK 6, N. Y. OAKITE

On the Chesapeake and Ohio, 6000 older cars are being equipped with ASF Ride-Control® Packages . . . so that

Now even "Chessie"



can ride their freights!



"Chessie" has long been a symbol of smooth, safe travel on crack C&O passenger fleets. Today, more than ever before, the same applies to their freight service.

Current modernization on the C&O calls for bringing some 6000 older cars up to modern riding standards with ASF Ride-Control Packages. Result: cars that ride over fifteen times more smoothly!

But aside from the obvious mechanical advantages is the equally important question of *economics*.

In deciding to use Packages extensively, the C&O considered the fact that a car available only for restricted use represents a potential revenue loss... that a more efficient car pool is the answer to carrying more freight per dollar invested in rolling stock...that safer

hauls at higher speeds build traffic.

Not all older cars are equipped with Packages, of course. Some are so close to retirement that they don't justify even this small an investment. So each older car is evaluated as to its over-all condition. In short, the C&O Package program is sound economics in practice as well as in theory.

Would a similar program be practical on your road? The facts prove that it's worth investigating. Now is the time to find out why a small per-car investment in Ride-Control Packages can pay you big returns!

Bring your older cars up to modern riding standards...with

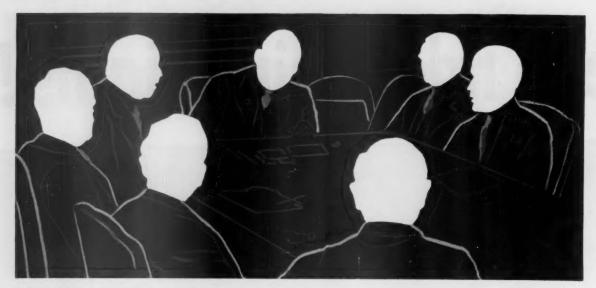


Ride-Control® Packages

AMERICAN STEEL FOUNDRIES

410 N. Michigan Avenue, Chicago 11, Illinois

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec



When Railroads Think Of 2-Way Radio...They Think Of Bendix

For yard, mainline, car checking, car inspection, maintenance of way or supervising control Bendix* has the radio equipment for any railroad need.

PLAN WITH THE PIONEERS

Bendix pioneered in the use of vibrator powered railroad radio equipment for caboose and locomotive installations. Bendix pioneered in the development of the 64 volt communications unit . . . now saving railroads \$200 to \$600 per locomotive radio installation.

MORE CLASS I RAILROADS USE BENDIX RAILROAD RADIO EQUIPMENT THAN ANY OTHER TYPE

YOUR CHOICE OF PACKAGING

Bendix is the only railroad radio that has transmitter, receiver and power supply as separate units in one package... or you can have them in three packages. Each chassis quickly removable.

It means freedom from obsolescence of any one of the three units . . . if any one unit is modified it can be replaced without replacing entire chassis.

Better control of preventive maintenance . . . service complete system when in service shop.

Plan with the Pioneers.

THE BENDIX CRC SYSTEM

CRC means a complete mainline system. It provides the dispatcher or wayside station (attended or unattended) with complete radio control over his division or section.

More Bendix CRC systems are in service than all other systems of a similar type.

Plan with the Pioneers.



*Reg. U. S. Pat. Off.

DIVISION OF BENDIX AVIATION CORPORATION . BALTIMORE, MD.

Chicago Sales Office: 188 W. Randolph St., Chicago 1, III.

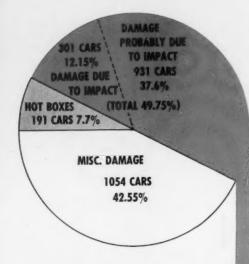
West Coast Sales: 10500 Magnolia Blvd., N. Hollywood, Calif.

Export Sales: Bendix International Division, 205 E. 42nd Street, New York 17, N. Y., U.S.A.

Canadian Distributor: Aviation Electric, Ltd., 200 Laurentian Blvd., Montreal, Quebec

Cut Car-Repair Costs?

Analysis of crippled-car reports says



TIME IN 1/60 SECONDS

800

Careful check of reports on 2477 bad-order cars indicates that roughly 50% of running repairs result from damage definitely or probably caused by excessive impact. Much of this damage can be prevented.

ANALYSIS OF CAUSES OF DAMAGE

Total number of orders handled in shop (railroad owned cars and foreign cars) over 30 day period 2,477.

	of Cars	Per Cent
Repairs definitely due to excessive impact	301	12.15%
Repairs probably due to excessive impact	931	37.6%
Repairs due to hot-boxes	191	7.7%
Miscellaneous repairs	1,054	42.55%

TO DAY CHECK MADE JANUARY 1934

Impact of High Capacity Underframe with Twin Spring Underframe at 7.57 mph.

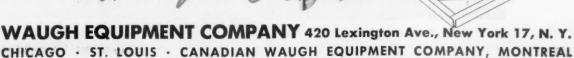
Surveys have shown that almost 80% of classification yard impacts are at speeds in excess of closing speeds for conventional draft gears and that more than 60% are in the range of 5 to 10 mph., a range in which the Waugh High-Capacity Cushion Underframe provides a high degree of protection.

and oscillograms tell H

Here is a carefully-instrumented comparative record of friction gear performance and Waugh High-Capacity Cushion Underframe performance under identical test conditions. What greater performance proof could one ask?

Equip freight cars with Waugh High-Capacity Cushion Underframes for a definite reduction in car repair costs.

e impact of a fric-raft gear equipped packing a friction 700 2 6000 500 z 400 € 300 ~ 200= 100







Dur tracks



followed theirs



The track of the covered wagon blazed the trail for the steel rails which eventually linked our continent.

Since 1882, The Colorado Fuel and Iron Corporation has been intimately associated with the growth of Western and Transcontinental railroads. Guided by a sincere desire to meet and anticipate the ever changing demands of progress, CF&I has, through the years, closely cooperated with the Railroad Industry in the development of new and improved rails and track accessories.

Today, CF&I is a nationwide network consisting of fourteen iron and steel producing and fabricating plants. Its Western steel making capacity has steadily expanded to nearly a million and a half ingot tons per year, including the manufacture of rails, fastenings and diversified steel products for railroads, as well as other basic industries.

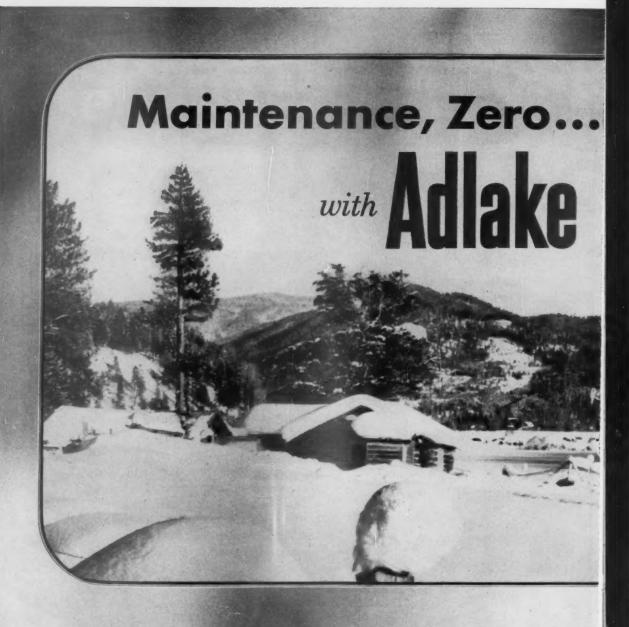


2876

THE COLORADO FUEL AND IRON CORPORATION

Denver, Colorado

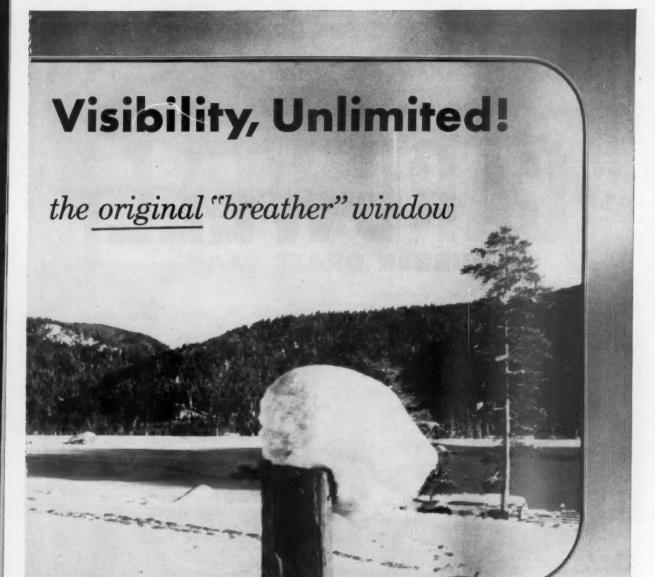




Yes, with absolutely no maintenance whatever except routine washing, ADLAKE "Breather" Windows stay crystal-clear regardless of temperature, humidity or altitude changes!

Windows are kept clear by the exclusive ADLAKE "Breather"—there are no dehydrants to change! And finally, panes which are broken in service can be replaced right on your own property...they do not have to be returned to the factory!

These are good reasons why all major American railroads use ADLAKE "Breather" Windows. We'd like to give you more details on all of them, and a few additional reasons as well. Write to The Adams & Westlake Company, 1150 N. Michigan, Elkhart, Indiana.



THE ADLAKE "BREATHER" WINDOW is the result of 98 years of designing and manufacturing experience produced by skilled and experienced personnel in a plant covering more than 11 acres. Don't settle for less than ADLAKE... the original "Breather" Window!

THE Adams & Westlake COMPANY



Established 1857 • ELKHART, INDIANA • New York • Chicago

Manufacturers of ADLAKE Specialties and Equipment for the Railway Industry.

- & Surpassing A. A. R. requirements
- A Supplementing the Cardwell Westinghouse line...

UBBER DRAFT GEAR



Westinghouse Friction Draft Gear

Cardwell Friction

Bolster Spring

Cardwell V-18 Friction Draft Gear

Cardwell M-25

Friction Draft Gear

Cardwell Westinghouse introduces the R-20 Rubber Draft Gear for freight service . . . now CERTI-FIED A.A.R.! It exceeded by gratifying margins all A.A.R. requirements for capacity, endurance and sturdiness.

Now Cardwell Westinghouse offers highly efficient, impact-absorbing draft gears of both types...friction and rubber! The R-20 supplements the line as Cardwell Westinghouse continues to supply its customers' demands for sturdy equipment.

Completely interchangable! The R-20 fits the standard 24%" pocket, in combination with two 2%" followers per gear. Send today for special R-20 catalog.

Cardwell Westinghouse Co.

332 S. Michigan Ave., Chicago 4, Illinois

Canadian Cardwell Co. Ltd., Montreal

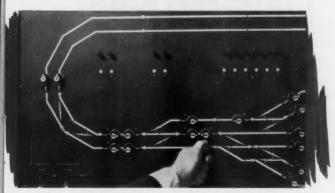
WESTINGHOUSE

To REDUCE COSTS in '55

Pushing a single button sets up a complete route to the correct classification track.



G-R-S cTc systems automatically produce a complete record of each train movement.



Two motions set up any route, even the most complex, through a G-R-S eNtrance-eXit interlocking.



G-R-S Absolute Permissive Block signaling permits fully protected following moves on single track.

CONSIDER THESE G-R-S SYSTEMS

G-R-S YARD AUTOMATION

Already in regular service, this system applies proven principles of automation to classification yard operations. Pushbutton routing combined with automatic control of electric car retarders, speeds humping rate, cuts damage claims, reduces yard overhead expenses. Only one control tower needed—even for large, busy yards.

G-R-S CENTRALIZED TRAFFIC CONTROL

cTc lets one man handle train direction over extended territories. Enables you to get maximum use of track and rolling stock by eliminating delays; by running larger, heavier trains. Often permits important savings by eliminating multiple-track sections.

G-R-S INTERLOCKING & REMOTE CONTROL

These systems concentrate control of one, or of several interlockings at a single strategic point. Simplify and coordinate complex routings. Save expenses of multiple control points. Latest systems have greatly increased capacity and speed of operation—keep up-to-the-minute information, instant control, continuously available.

G-R-S AUTOMATIC BLOCK SIGNALING

Now available without line wires for single- or double-track operation, G-R-S automatic block systems provide protection for both heavy and light traffic lines. Keep trains adequately spaced yet on the move. Give enginemen confidence to proceed at maximum permissible speeds, even where curves and tunnels restrict visibility.

G-R-S engineers can help you plan cost cutting signal installations for your railroad. For studies and estimates, call your G-R-S sales office.



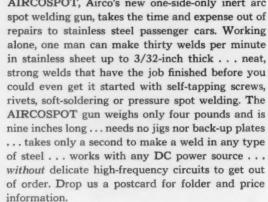
ROCHESTER 2. NEW YORK

230 PARK AVE. NEW YORK IT

2 S. MICH AVE CHICAGO 3

II OLIVE ST. ST. LOUIS





Compare the stainless steel side panel repair made with slow, old-fashioned compare the stainless steel side panel repair made with slow, old-fashloned self-tapping screw and rivet methods (left) with the neat accurate job done with AIRCOSPOT on a similar panel (right). Because AIRCOSPOT ends drilling and the mess of solder and flux, more and more railroads and car builders are using this fast, sure welding technique in kitchen equipment, washroom facilities, vestibule paneling and other work on light-gauge mild and stainless steel sheet.



AIR REDUCTION

60 East 42nd Street . New York 17, N. Y.

Divisions of Air Reduction Company, Incorporated, with offices in most principal cities

Air Reduction Sales Company Air Reduction Pacific Company

Represented Internationally by Airco Company International

Foreign Subsidiaries: Air Reduction Canada, Limited, Cuban Air Products Corporation

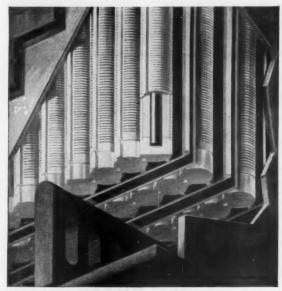
Products of the divisions of Air Reduction Company, Incorporated include: AIRCO — industrial gases, welding equipment, and acetylenic chemicals *
PURECO — carbon dioxide, liquid-solid ("Dry-Ice") * OHIO — medical gases and hospital equipment * NATIONAL CARBIDE — pipeline acetylene
and calcium carbide * COLTON CHEMICAL COMPANY — polyvinyl acetates and alcohols and other synthetic resin products.

KEEP MORE PASSENGERS COMFORTABLE

... with bright, steady lights and cool cars!



COMFORTABLE passengers are satisfied customers. Exide-Ironclad batteries insure ample power for bright, steady lights and comfortable cars even during long stops. Built to withstand hard, continuous service, they give you worry-free performance, maintain high, uniform voltage under all operating loads. Lower costs for operation, maintenance and depreciation make Exide-Ironclad batteries your best power buy—AT ANY PRICE!



THE POSITIVE PLATES are the heart of any battery. Only Exide uses a slotted tube construction. By use of tubes, more active material is exposed to the electrolyte, providing greater power. Also, more active material is retained, giving longer working life.



IMPROVED Exide-Ironclads now have power tubes made from non-oxidizing plastic for longest battery life, more capacity in the same space. For full details, call your Exide sales engineer—write for Form 5010 (Installation and Maintenance of Car Lighting and Air Conditioning Batteries).

Your best power buy
... AT ANY PRICE!



Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.



Can you picture a Purchasing Agent on this job—doing piping maintenance work? No—his headaches are many, but this isn't one of them. Yet he can help the Maintenance Dept. plenty—for he's a key man in getting the best valves for every service.

Purchasing men know the risk of gambling with valve quality—especially now when maintenance rates are so high. It costs just as much to install an inferior valve as a good one—and a lot more to keep the poor-quality valve working. Buying for price tag savings was never more unwise.

Thrifty buyers are meeting the problem handily with Crane valves. Traditionally better Crane quality gives greater assurance of value—of dependability in service—of low cost maintenance. The complete Crane line permits widest selection.

Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas.



CRANE

VALVES . FITTINGS . PIPE . PLUMBING . HEATING

Here's the RIGHT WAY TO CONTROL WEEDS...



WEED KILLERS

RIGHT for the big jobs



TCA-CHLORATE Liquid Concentrate in Tank Car Lots for Spray Train Application.

General Chemical's "Rite-o-way" Brand TCA-CHLORATE is made especially for large-scale railroad weed control operations. This special high-strength formulation of sodium trichloroacetate and sodium chlorate is an outstanding all-purpose weed killer used on leading railroads. General Chemical's Railroad Weed Control Service can furnish you with a complete, professionally planned control program for using "Rite-o-way" TCA-CHLORATE, including equipment and trained technical crews to do the spraying.



General Chemical's Railroad Weed Control Service provides the most advanced type of spray trains with specially designed spray heads to give complete control for all conditions.



Spray apparatus is designed to provide variable volume of output for greater kill where heavier weed growths are found.

RIGHT for the small jobs



"STA-KLOR" Spray Powder in 100-lb. Drums for Dry or

Wet Application by your regular labor crews.

For those nuisance jobs of weed killing in terminal yards, rip tracks, storage yards, station curbs and driveways, switches, ladder tracks and many more. STA-KLOR is the same powerful herbicide as "Rite-o-way" TCA-CHLORATE, a high-strength formulation of sodium trichloroacetate and sodium chlorate. A convenient spray powder—it can be used both as a dust and a spray. Handy 100-lb. drums; can be applied by your regular labor crews.



General Chemical STA-KLOR gives you these big advantages:

- · Economical.
- Easy to handle . . . easy to use.
- Gets both broad-leafed and grassy weeds.
- Kills roots, prevents regrowth.
- Does not create fire hazard
 . . . retards burning.

General Chemical Trade Mark



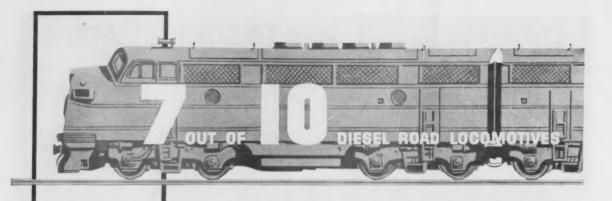
For further information write to . . .

Weed Killer Department

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION 40 Rector Street, New York 6, N. Y.











ARE NOW HYATT-EQUIPPED!

Yes, they're mighty impressive figures—but the reason behind this success story is even more impressive. HYATT is America's largest, oldest, and most experienced builder of railroad roller bearings. We produced the first set ever used 60 years ago. And now we have developed a new design that will substantially reduce the cost of applying roller bearings to freight cars—a significant contribution to rail progress that adds even greater stature to America's FIRST name in railroad roller bearings! Write today for full details. Hyatt Bearings
Division, General Motors Corporation, Harrison, New Jersey.

YATT

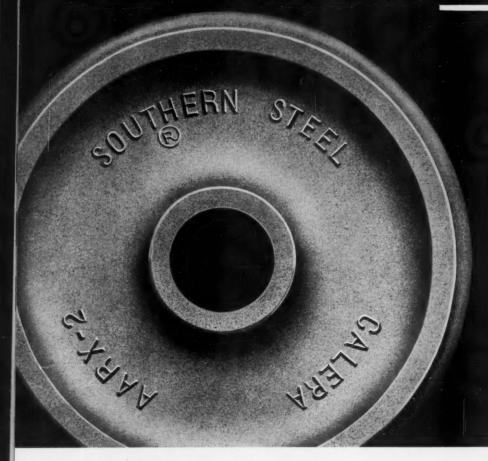
Roller Bearing Journal Boxes

STRAIGHT (

BARREL (

TAPER (

STEEL WHEELS AT LOWER COST



PROVEN
in 13 years of research
PROVEN
in 7 years of road service
PROVEN
in 5 million test car miles

The Southern steel wheel, approved for interchange and designated AARX-2 by the A.A.R., is a time-tested, time-proven wheel. You can put this steel wheel under your freight cars at lower cost than other steel wheels!

This new cast steel wheel is the outgrowth of a research project inaugurated in 1941, of a road test program begun in 1947 and continuing to the present time. Service records prove that the Southern cast steel wheel delivers extra strength, extra stamina, extra actual miles in service. Car after car in regular service has rolled up well over 100,000 miles; and two of them have passed 300,000 and are still going strong.

The Southern steel wheel owes its exceptional performance to its unique metallurgical structure. Cast of 1.5% carbon steel, of an analysis similar to that of die steel, it is subjected to an exacting double heat treatment to develop to the fullest the optimum properties of the metal. Electric furnace melting gives close control of analysis, and conventional sand molds with chillers are used to produce directional solidification and dense tread metal. After the wheels cool below critical temperature, the two-stage heat treatment refines grain, relieves stress, and spheroidizes the carbides. The result is an extremely wear-resistant metal, with a high degree of toughness. There are no transition areas—the metallurgical structure is uniform from flange to hub.

Throughout manufacture, there is no compromise with quality in pro-

ducing Southern cast steel wheels. Modern instrumentation and sensitive automatic controls are used extensively for utmost accuracy. Special equipment performs all machining operations at a single chucking, producing an inherently balanced wheel with all machined surfaces square and concentric.



Southern Wheel's entire new Calera, Ala., plant is devoted exclusively to the high quality, high volume production of cast steel wheels. It is Brake Shoe's most recent project for better serving the needs of American railroads.



SOUTHERN WHEEL DIVISION



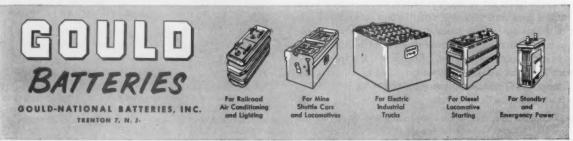
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Springs into Action . . .



Always Use Gould-National Automobile and Truck Batteries

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International's

PRECISION CONSTRUCTION

Center filler, rear draft lugs and center plate - one steel casting . . .



welded integrally into the bolster-center sill connections. International's corrective design for . . .

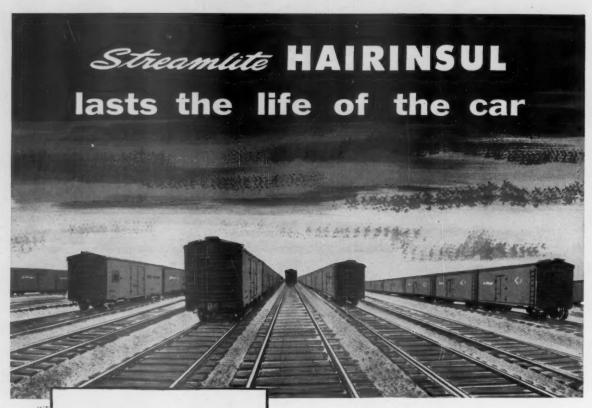


an all-welded underframe which has a history of NO FAILURES!

International STEEL COMPANY

EVANSVILLE 7, INDIANA

RAILWAY DIVISION



LOW CONDUCTIVITY... Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity —...25 btu per square foot, per hour, per degree F., per inch thick.

LIGHT WEIGHT... Advanced processing methods reduce weight of STREAMLITE HAIRINSUL by 40%.

PERMANENT... Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.

EASY TO INSTALL . . . Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.

COMPLETE RANGE... STREAMLITE HAIRINSUL is available ½" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other weights and facings available.

HIGH SALVAGE VALUE... The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

...and adds LIFE to your perishable cargo

When you call for STREAMLITE HAIRINSUL to be installed in new refrigerator cars you are making a wise, one-time investment because . . . it lasts the life of the car!

Yes... and you are actually adding life to valuable shipments of perishables through their safeguarded protection against sudden and extreme temperature changes with STREAMLITE HAIRINSUL... the dependable all-hair insulation that weighs 40% less... and does so much more!

More Reasons why refrigerator car builders prefer STREAMLITE HAIRINSUL are listed at left. There are many more! Write for complete data.

Write to: Merchandise Mart Chicage 54



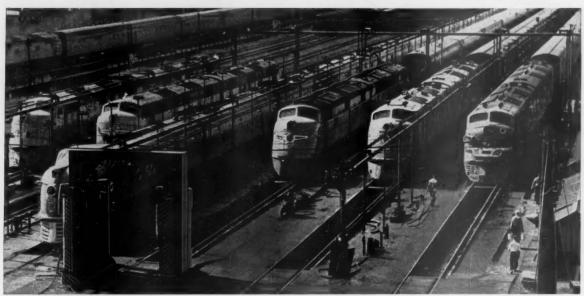
HAIRINSUL & FELT CO.



SETS THE STANDARD BY WHICH ALL OTHER REFRIGERATOR CAR INSULATIONS ARE JUDGED

GET UNINTERRUPTED "ON LINE" SERVICE

... with low cost Exide-Ironclad diesel batteries!



WHEN DIESELS are equipped with Exide-Ironclad batteries you are assured high availability of equipment—uninterrupted "on line" service. These ruggedly built batteries assure quick starting and the positive operation of control

equipment because they have ample reserve power at high sustained voltage. In addition, lower costs for operation, maintenance and depreciation make Exide-Ironclad diesel batteries your best power buy—AT ANY PRICE!



THE POSITIVE PLATES are the heart of any battery. Only Exide uses a slotted tube construction. By use of tubes, more active material is exposed to the electrolyte, providing greater power. Also, more active material is retained, giving longer working life.

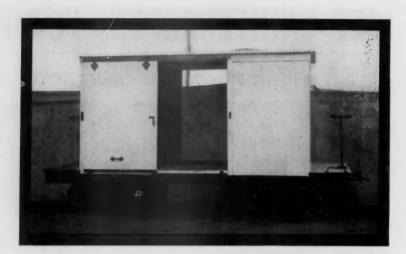


DEPENDABLE POWER, ample reserve power for any diesel need, comes from improved Exide-Ironclads. Prompt delivery. For full details, call your Exide sales engineer—write for Form 4843 (Installation and Maintenance of Diesel Starting Batteries).

Your best power buy
... AT ANY PRICE!



Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.



OF PROGRESS





50 years and hundreds of millions of miles have passed since the first Magor built car went into service for the American Railroad Industry.

Since that time, Magor Cars have been rolling up mile after mile of dependable service for not only American Railroads but for railroads located in over 50 foreign countries, as well.

The tremendous progress made and the yeoman service performed by the American Railroad Industry represents an envigable record of

American Railroad Industry represents an enviable record of achievement. We at Magor are grateful that our rolling stock has played a contributing part in this successful and rapid growth of modern transportation.

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Designers & Builders For The Railroads Of The World

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Manufacturers of: Box Cars

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Hopper Cars

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Caboose Cars

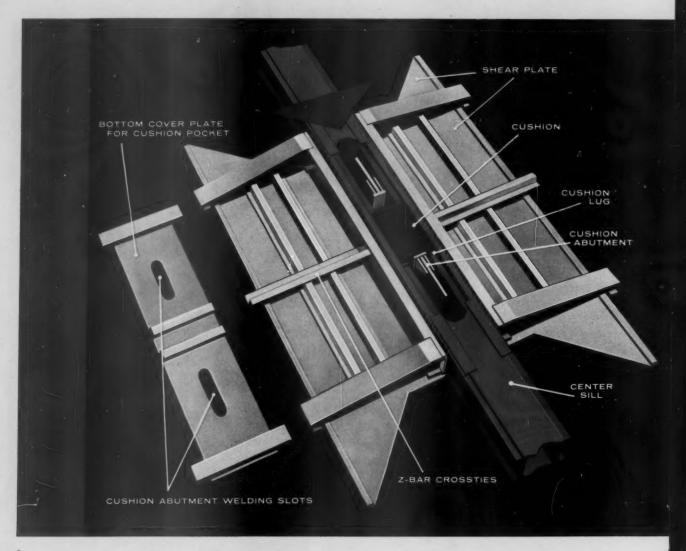
cushion underframe

designed
to meet the
\$111,000,000
annual lading damage
problem



GREAT AMERICAN RAILWAY

the P-S cushion underframe



the annual lading damage bill for Class I railroads alone is about 111,000,000 dollars. How much of this waste did your road pay? Every dollar paid settling lading damage claims comes out of profit . . . just as every dollar saved through prevention of loss can be added to profit totals. The benefits of loss prevention run to "important money" figures.

Unfortunately, rough car handling during train makeup and in service is inevitable with present day emphasis on speed. Lading damage prevention is dependent largely on mechanical devices.

Pullman-Standard's new Cushior Underframe device promises to greatly reduce staggering lading damage costs from rough car handling.

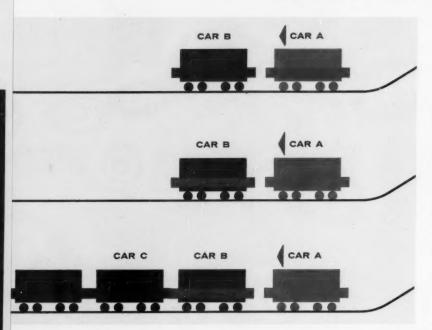
P-S engineers and designers approached the lading damage problem in the light of continuing demands for greater hump and train service speeds, with proportionately rougher car handling. It was obvious to them that a high energy absorption device was needed to offset continually greater coupler impact. Draft gears at each end of the car were found useful,

but limited. Protection devices applied to lading also helped, but had restrictions. Springs were ruled out as they went solid when their limited capacities were reached under heavy impact. The answer seemed to lie in the area between the draft gear and the lading and car body.

They found the solution in a rubber cushion pocketed in the underframe. Housed in a sliding sill that passes freely through bolsters and crossbearers, the rubber cushion is compressed by impact between lugs within the sill and abutments attached through a shear plate to the car body. Thus the P-S Cushion Underframe uses the closing of two standard draft gears plus the action of the rubber cushion to effect high absorption of energy by lengthening the travel during which impact is dissipated.

It can be seen that the P-S Cushion Underframe is based on the theory Long Travel, Low Force... like a boxer rolling with the punch. And the P-S Cushion Underframe is proving itself in our laboratory and in service on the Great American Railway System, at impact speeds usually considered "collision."

graphic proof of cushion underframe shock absorption ability



1 When a P-S Cushion Underframe car is the striking car, as is Car A, opposite, and the struck Car B is a conventional car, a double protective action takes place. On impact, the cushion underframe greatly diminishes the effect of the impact on Car A. In addition, the conventional Car B benefits, too, since the shock energies absorbed by the cushion underframe reduce the effect of the impact on Car B. This means double protection for both cars and their lading.

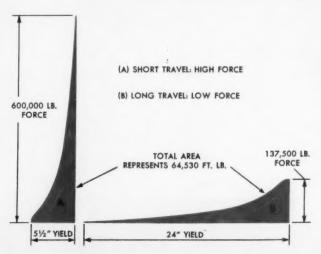
2 With Car A, the conventional car, striking cushion underframe equipped Car B, double protective action again takes place. Not only does the action of the cushion underframe fan out dangerous coupler impacts in Car B but in so doing lessens the effect of the impact on Car A.

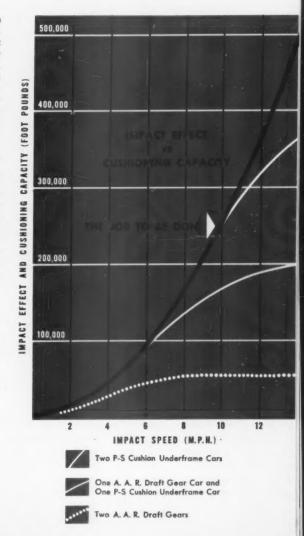
3 And the P-S Cushion Underframe performs equally well when the equipped car is the struck car at the head of a cut of cars. When conventional Car A is humped into cushion underframe Car B, the action of the sliding sill guards Car B from permanent deformation, fracture and damage to lading. This situation involves the closing of four standard draft gears, (one in Car A, two in Car B, one in Car C) plus compressing the rubber cushion in the P-S Cushion Underframe.

In all three of these instances the Pullman-Standard theory of Long Travel, Low Force extends the travel of the impact and reduces the shock the car body and lading must absorb.

The chart on the right demonstrates why the Pullman-Standard Cushion Underframe is the most effective car and lading protection device in existence. The "Job To Be Done" trace projects the climb of forces to be absorbed as impact speed increases. Note that less efficient protective devices reach their capacities at low speeds, and contribute little in the high-speed, heavy impact areas. The highest levels of protection are afforded by cars equipped with the P-S Cushion Underframe. As demonstrated by the chart, highest protection levels are obtained by two cushion underframe equipped cars. Effectiveness is 100% of the Job To Be Done, until unusually severe speeds and impacts are reached. Even then, reduction in shock absorption is gradual.

The Pullman-Standard theory of Long Travel, Low Force is visually presented through an assumed 24-inch travel of a cushioning medium, by charts A and B below. With two standard draft gears providing only 5½ inches of yield, 64,530 ft.-lbs. represent an intense and dangerous concentration peak of 600,000 pounds of force to be absorbed by car and lading. The travel is short and the force high. However, with the same number of foot pounds, 64,530, gradually applied through a 24-inch yield the force to be dealt with is only 137,500 pounds. This much smaller force can readily be handled by car and lading with no permanent deformation or fracture. The validity of Long Travel, Low Force is obvious.







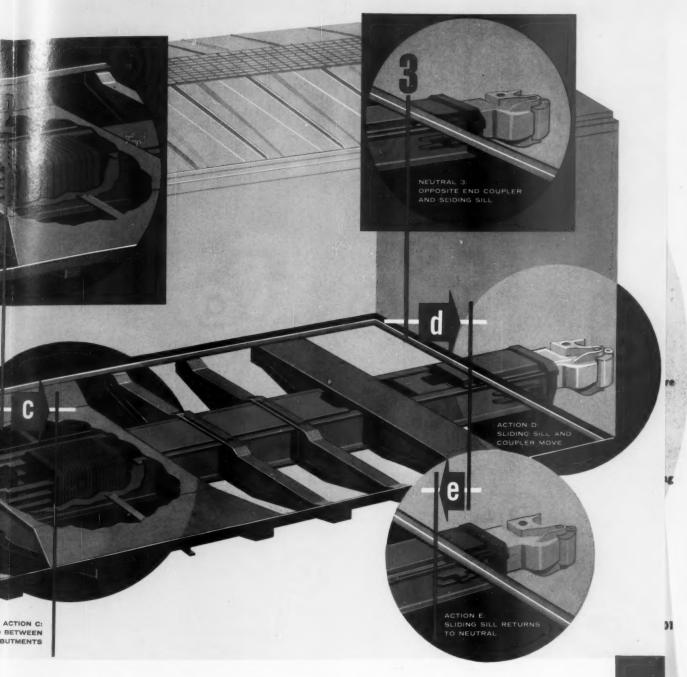
neutral 1 neutral 2 neutral 3

Coupler, cushion underframe sliding sill and conventional draft gear in neutral position, with neither buff nor pull forces being applied.

Cutaway of rubber cushion in its pocket, sliding center sill and lugs, abutment and shear plate. All elements in neutral, actionless position.

Opposite end coupler, cushion underframe sliding sill and conventional draft gear in neutral position. No impact or pull is taking place.

With impact coming from the by the striking car is first made of the struck car. action a coupler being driven in, with cand impact absorption taking conventional draft gear under mi impact. Under heavy impact to becomes overloaded and goes the bulk of dangerous shock handled by the cushion underfrabillustrates the impact forcing ion Underframe's sliding center the bolsters and the crossbearer ment causes, in action c, the center sill to press against the ru



from the left, contact st made on the coupler **ction a** shows the n, with closing action a taking place in the under mild, low speed impact the draft gear and goes solid, leaving is shock energy to be underframe. **action** forcing the P-S Cushing center sill through ssbearers. This movement c, the lugs on the last the rubber cushion

in the heart of the cushion underframe. As the cushion is compressed, it is squeezed against the abutment which is welded to the shear plate. The shear plate in turn is fastened to the car body. When sufficient compression of the rubber cushion is reached, the inertia of the car body is overcome. No over-solid, metal-to-metal point can be reached. The car then moves in the same direction as the sliding sill. This cushioning lengthens the travel of the impact, allowing energies caused by the coupler impact to fan out and run off gradually through shear plate, car body and lading, without permanent deformation or fracture. Coupler forces are not transmitted to the car

structure through the body bolsters, as in conventional gears. **action d** at the opposite car end demonstrates how the sliding sill moves freely through the underframe during impact. **action e** completes the action cycle and shows cushion underframe elements returning to neutral position, ready to absorb and dissipate the coupler shock of the next impact. Cushion underframe action is equally effective under either buff or pull, such as when train slack is being run out, and during road service and switching operations. A Pullman Standard representative will be pleased to detail this action cycle for you at your convenience.

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Railroad-Shipper-Consignee experience with the P-S Cushion Underframe

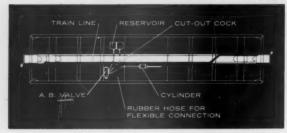
Actual lading damage prevention is rapidly confirming Pullman-Standard expectations for the cushion underframe. Records are being kept by Pullman-Standard and the roads using the P-S Cushion Underframe, and overwhelming proof of in-service performance is being accumulated.

These railroads report their shippers and consignees are enthusiastic about how the cushion underframe is doing the job for which it was designed. And Pullman-Standard representatives have been closely observing the performance of

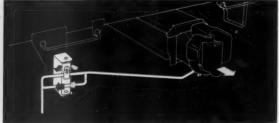
the cushion underframe over a period of more than two years. They know that such products as bottle goods, clay products, appliances, pharmaceuticals, canned goods, and even glass plate are representative of the hundreds of items the cushion underframe protects against breakage and damage.

Let a qualified Pullman-Standard representative detail cushion underframe performance for you. His experience with modern lading protection devices can save you money.

Cushion Underframe Accessory Features



Air brake arrangement—The air brake train line is carried on the sliding sill of the P-S Cushion Underframe. A.B. valve, reservoir and cylinder are secured to the car underframe and connected to the train line by a flexible rubber hose.



Uncoupling device arrangement—Special flexibility built into the uncoupling device is another feature of the P-S Cushion Underframe. This arrangement allows the sliding sill to travel in or out with no stress on the uncoupling mechanism.

Built to serve best on the GREAT AMERICAN RAILWAY SYSTEM



YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN - STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED
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NEW LINKAGE—Easier to Operate

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Here's another Vapor achievement that saves railroads time and money—a better, new End Valve that works much easier; holds a tight seal far longer . . . that's ideal for modern preventive-maintenance programs.

On today's longer trains with higher steam pressures and larger piping, Steam-Life valve operation is smooth, effortless, positive! There's no time lost...no steam lost. Each moving or wearing part is designed to give two years, or more, of trouble-free, uninterrupted service.

Now you can solve your End Valve problems in either of two low-cost ways: (1) with complete new Vapor R-1117 Steam-Life End Valves; (2) with Vapor Steam-Life End Valve Conversion Kits. Whichever you choose, you'll equip your cars for years of new End Valve economy.

STEAM-LIFE END VALVE CONVERSION KIT R-1117-301

Converts existing Vapor 1117, F-1117, or 1118-2 End Valves to modern Vapor Steam-Life design. Includes all necessary working parts, pins, springs, etc., for easy installation at but a fraction of new-valve cost. Make this conversion standard practice whenever an old valve is serviced.

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Cuts at-the-car servicing 90% ... stays right on the car between scheduled shoppings. Full-length, full-area streamlined steam passage eliminates flow-restricting eddies and excessive pressure drop. For all 2" or 2½" train lines.



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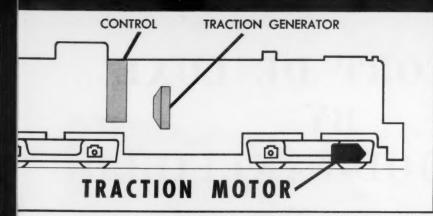
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THREE SUPERIOR COMPONENTS, installed as an integrated system, help you get rugged, flexible motive power that assures better locomotive utilization and easier maintenance.

G-E traction motors give you 15% MORE CONTINUOUS TRACTIVE EFFORT

In day-to-day operations, the heavier loads consistently go to locomotives with G-E traction motors. The GE-752 motor gives you 15 percent higher continuous tractive effort, at comparable gearings, than any other motor offered today. This extra capacity accounts in large measure for its record of low maintenance costs and low percentage of failures.

MOTOR OVERHEATING ELIMINATED

With 65-mph gearing, the GE-752 is the nearest thing yet to a self-protected traction motor. Unless your operation is most unusual, you can forget about short-time ratings with this gearing. Motor torque will slip the wheels long before the current developed is high enough to cause motor failures.

HIGHER LOCOMOTIVE UTILIZATION POSSIBLE

The capacity of this traction motor is helping many railroads attain better locomotive utilization, an important factor in lowering operating costs. For example, when your locomotive is equipped with G-E motors geared to 75 mph, it still has a high enough continuous tractive effort to permit dual-purpose operation. In most cases you have the speed to meet express and passenger schedules without sacrificing the tonnage-hauling capacity for freight. Locomotives with GE-752 motors geared to 75 mph are equally adaptable to divisions with level runs and those where mountain grades are encountered.

Ask your G-E Apparatus Sales representative for more information about this motor—one of the superior components of the traction system that sets the industry standard. General Electric Co., Schenectady 5, N. Y.

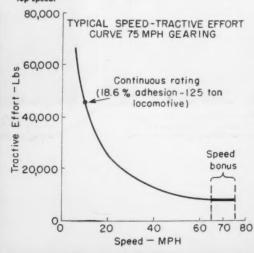
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SEPARATELY MOUNTED PINION requires lower maintenance. Largest in standard use, 4 % -in. pinion shaft reduces chance of fatigue breakage.



DUAL-PURPOSE 75-mph gearing of GE-752 motors provides continuous tractive effort into the self-protecting slipping range, as well as a bonus of 10 mph in too speed.



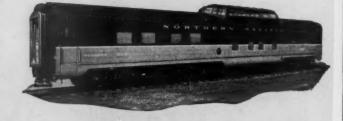
LARGEST PINION-END BEARING in railroad use can take heaviest duty. Sealed bearing needs no inspection between overhauls.



COMFORT DE LUXE BY HEYWOOD-WAKEFIELD

in Northern Pacific's 23 New Modern Cars

BUDD COMPANY recently constructed 10 sleepers and 10 coaches to be put into service on the Northern Pacific Railroad. In every way these functional modern cars have been designed to offer the ultimate in travel comfort to passengers. Spacious Heywood-Wakefield sleeping units give the comfort of the passenger's own bed at home; Heywood seating is as luxurious as an easy chair in his own living room.





Interior of new Budd Sleeper utilizes every bit of space effectively . . . and with seating and sleeping unit by Heywood maintains a high standard of genuine comfort.



Interior of one of Northern Pacific's new dome cars. Heywood's comfortable sleeping units and coach seats are two of the features in these fine modern cars by Budd.



PULLMAN COMPANY built 2 coaches and 1 parlor car in the new group being added to the Northern Pacific Railroad line. Here again the emphasis is on passenger comfort as provided by famous Heywood-Wakefield. Your Heywood representative will be happy to give you complete details of the many seats and sleeping units available to bring the ultimate in modern comfort to your passengers.



As attractive as they are comfortable, Northern Pacific's smartly appointed new parlor cars by Pullman. Here, also, "living room lounge chair comfort" is provided by big, spacious Heywood chairs.

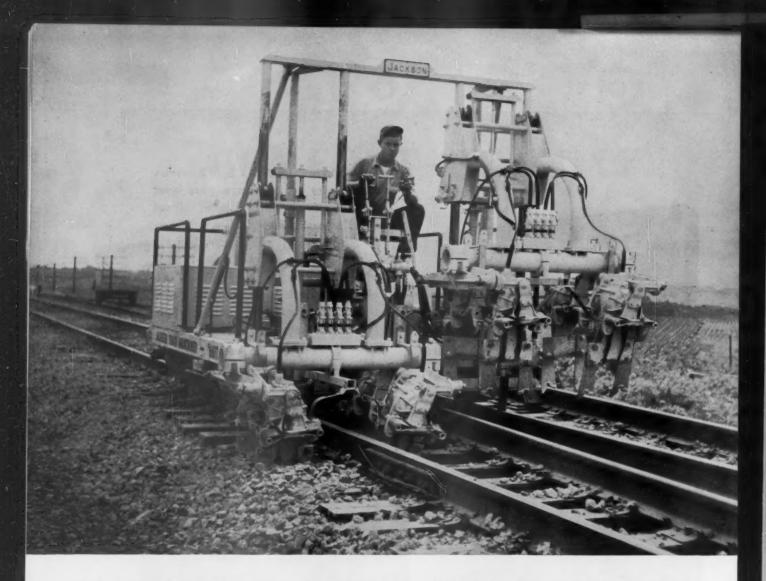


Interior of new Pullman constructed coach designed throughout to offer the best in travel case. Heywood-Wakefield seating was chosen by Northern Pacific to assure passenger comfort.



HEYWOOD-WAKEFIELD

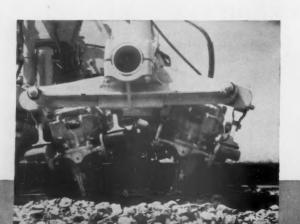
Transportation Division
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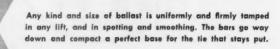
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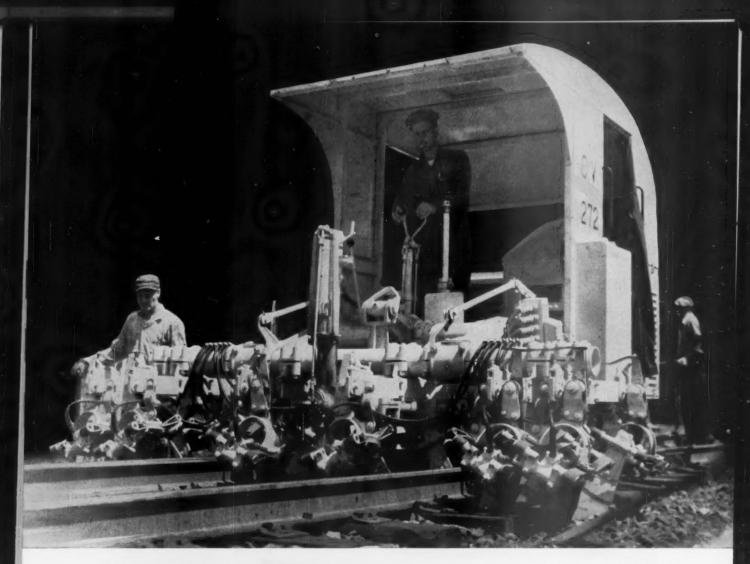


machine for the over-all job of both putting up and maintaining track of highest quality. Write for descriptive folder. Wire or phone for the answers to any specific questions you may have.



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Unsurpassed for putting up track of finest uniform quality in all lifts from the highest to those no lower than the average size of ballast used. Initial cost is far less than any other on-track tamper.

JACKSON HAND TAMPERS and POWER PLANTS

are ideal for low lift and smoothing work with small gangs using 2 to 4 tampers — excellent for major ballasting or out-of-face operations since 2 or more of these 4-tamper outfits may be grouped as required. VERSATILE — quickly interchangeable blades adapt tampers to handle every job at peak efficiency. Write, wire or phone for complete information.

Model M-22 Power Plant serves 2 to 4 manually guided tampers. Thoroughly reliable, easily portable. May be used for lighting and operating other power tools.

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electric travel, electric rotation!
25 to 60 ton capacities!



Designed and built by Industrial Brownhoist Corporation for mines, quarries, railroads, steel mills, the lumber industry and other large manufacturing plants that require mobile materials handling equipment in heavy duty capacities, America's first Diesel Electric Wagon Crane is now in production. Available in capacities from 25 to 60 tons, the new wagon crane will be equipped with dynamatic clutch, antifriction bearings at essential points, and power steering. It employs electric travel and electric rotation. Mounted on a 12-wheel crane carrier capable of speeds up to 8 miles per hour, the unit can be operated by one man from easy-to-reach crane and carrier controls. Rigorous tests indicate that the new machine provides economical operation and insures added savings of time and labor in heavy duty materials handling work. For complete details, consult a Brownhoist representative or write us today.



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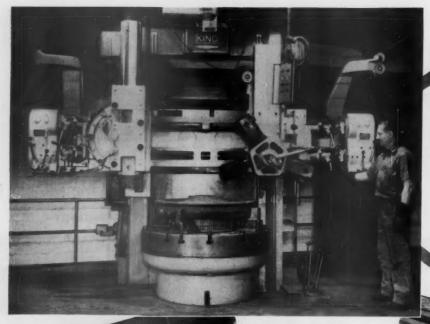
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BROWNHOIST



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The KING Vertical Boring & Turning Machine at left—a modification of our standard 52" design—is used for boring, facing, and turning operations on Diesel locomotive wheels. Operations performed include trueing outside diameter, facing off hub, turning hub for dust guard, rough and finish boring, cutting the chamfer, and forming radius. chamfer, and forming radius.

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On this KING Vertical Boring pocking

Nachine, locomotive exhaust pipe an 80%

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MULTIPLE BEARING CROSSHEAD. Above is a close-up view of a 42" KING in a back shop of a prominent Eastern colload. Operator is cutting radius on a locomotive multiple cutting radius on a performed on this versalile machine.

King VERTICAL BORING & TURNING MACHINES

Whatever

YOUR MAINTENANCE REQUIREMENTS-

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Deliver Maximum Production at Lowest Cost

The modern KING® line of vertical boring and turning machines meets all railroad requirements, large and small—for special purpose work such as Diesel locomotive wheel production—for general purpose work machining a wide range of railroad maintenance jobs.

From the 30" to the 144" size, each of these new KINGS is extremely versatile in its own capacity range. Each model has extra-heavy, rigid construction; smooth power; wide range of speeds and feeds; time-saving ease of control—essentials for fast, precision work.

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DIESEL ENGINES

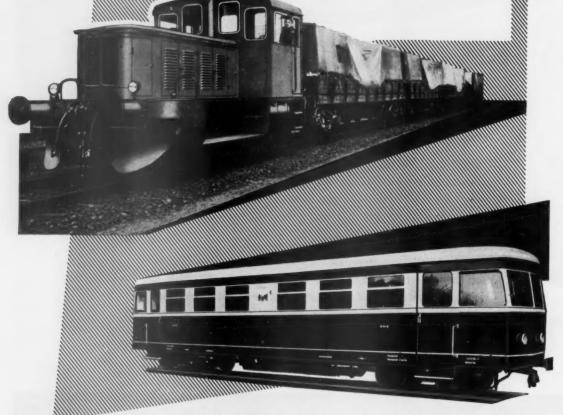
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DIESEL LOCOMOTIVES

Air-cooled

DIESEL ENGINES

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THE ENGINEER'S REPORT

LUBRICANT RPM. Delo Oil R.R.

UNIT Diesel locomotive

Transcontinental freightSERVICE grades to 1.8% FeightPERIOD Minneapolis, Minn., to
LOCATION Wenatchee, Wash.

FIRM Great Northern Railway

504,851 freight miles in 3 years without overhaul!





ONLY 0.002 INCH WEAR was miked on liners of this locomotive's engines when they were inspected after 504,851 actual miles. Lubricated with RPM DELO Oil R.R., the engines operated without trouble of any kind during 3 years of tough service hauling freight over the Continental Divide. Representative piston and liner, above right, shown as they appeared when taken from one of the engines, demonstrate good condition of parts after this extended service. All rings were free when engine was torn down. Overhaul was performed only because of time and mileage on engine, which was estimated to have idled the equivalent of 100,000 miles in addition to actual mileage. Besides low wear of liners, other wear measurements (inches) were only: Wrist Pin-0.001; Wrist Pin Bushing-0.0015; Carrier Bushings-0.0015; 0il Ring-0.003.

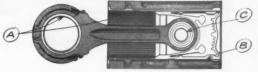
REMARKS: Great Northern Railway's diesels haul heavy freight up grades as severe as 1.8%. Engines operate in dust and heat in summer, snow and extreme cold in winter.



FREE CATALOG: "How to Save Money on Equipment Operation," a booklet full of valuable information, will be sent you on request to Standard Oil Company of California, 225 Bush St., San Francisco, Calif.



How RPM DELO Oil R.R. prevents wear, corrosion, oxidation



- A. Special additive provides metal-adhesion qualities...keeps oil on parts whether hot or cold, running or idle.
- B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean...helps prevent scuffing of cylinder walls.
- C. Special compounds stop corrosion of any bushing or bearing metals and foaming in crankcase.

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The nation's great railroads use Lewis Sealtite fasteners. Accurately engineered, designed to do a better job, Sealtite products are tough, durable, made of finest grade metals for heavy duty. They meet the most exacting specifications.

More than 20 years of manufacturing experience have established Sealtite's top quality in the industry. Such famous Sealtite features as the patented fins, for better seating, Sealtite's accurate threading, for easy installation, and many others, have given Lewis Sealtite products a "Class I" reputation in the field.

The next time you specify fasteners, specify Lewis Sealtite, a complete line of first grade fasteners for America's leading railroads.

All Sealtite products are available in HOT-DIP GALVANIZED, SEALED-IN-ZINC finish, which stops rust and corrosion. Tests prove that the molten zinc bath gives Double-Life, greater economy through fewer replacements.

Serving 85% of America's Class 1 Railroads

> See your Lewis representative, or contact factory for samples, prices, full details. All products are manufactured in the U.S.A. to A.S.T.M. specificatio

Soultite

BOLT & NUT COMPANY 504 Malcolm Ave. S. E. Minneapolis 14, Minnesota





Loktite Nut #2

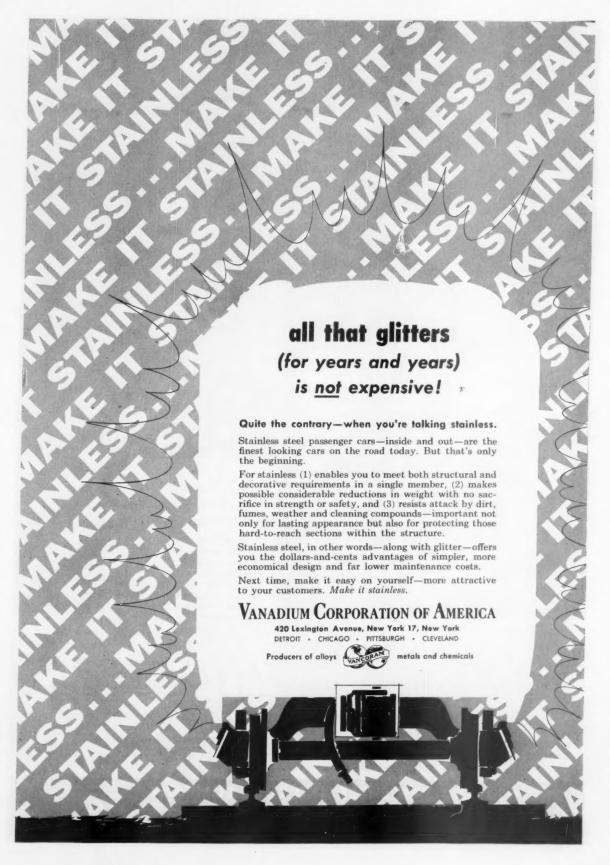


Slotted Head

Large-Head Car Balt

Sealtite Washer Nut

Sealtite Bolts available with Loktite Nut #2, washer nut, or std. sq. and hex. nuts





● Made of finest quality steel, with close attention to size, threading and finish — that's Youngstown! You can't buy better pipe anywhere.

And your Youngstown Distributor is there to serve you. He has a big stock of this good pipe in all wanted sizes, close at hand and ready to deliver promptly. Why not phone him whenever you need pipe?

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THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of

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SAFETY IS WORTHLESS

HOW MUCH IS ABSOLUTE SAFETY WORTH?

There is no such thing as "a little bit safe!" "Absolutely safe" may cost a bit more, require a bit of exfra effort to apply . . . but stop for a moment and consider the cost of not taking that extra bit of caution!

CRECO'S EQUALIZED BRAKE BEAM SAFETY GUARDS for new and existing trucks, both spring plank and spring plankless, assure you the absolute safety your road must demand!



CHICAGO RAILWAY EQUIPMENT CO.

332 SOUTH MICHIGAN AVENUE . CHICAGO 4, ILLINOIS

GAIN THESE ADVANTAGES for new and rebuilt Passenger Car Interiors

FAST ASSEMBLY with Met-L-Wood, whether you fabricate in your shops or use prefabricated Met-L-Wood panels made to your exact specifications.

LIGHT WEIGHT Met-L-Wood panels can reduce weight to as low as 27% of the weight of comparable steel construction.

SOUND-DEADENING value of Met-L-Wood reduces outside noise levels, and is particularly valuable as sound-isolation when used for compartment partitions and doors.

VIBRATION DAMPING effect of Met-L-Wood helps prolong car life - gives passengers extra comfort.

and Smooth, Durable Beauty!

Whether plastic, painted steel, stainless steel, or aluminum, the smooth sweep of Met-L-Wood panels adds beauty to any car interior. Tough, abuse-resisting surfaces keep car interiors newlooking for years.

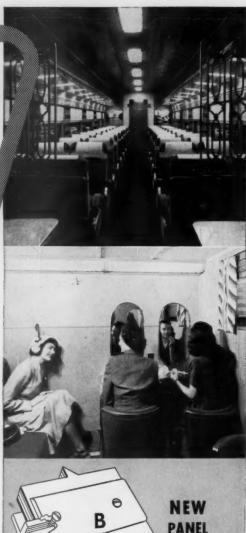
Details and technical data on Met-L-Wood panels, doors and partitions will be sent promptly on request.

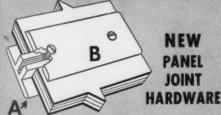
Write for Bulletins 520 and 521



MET-L-WOOD

6755 West 65th Street, Chicago 38, Illinois





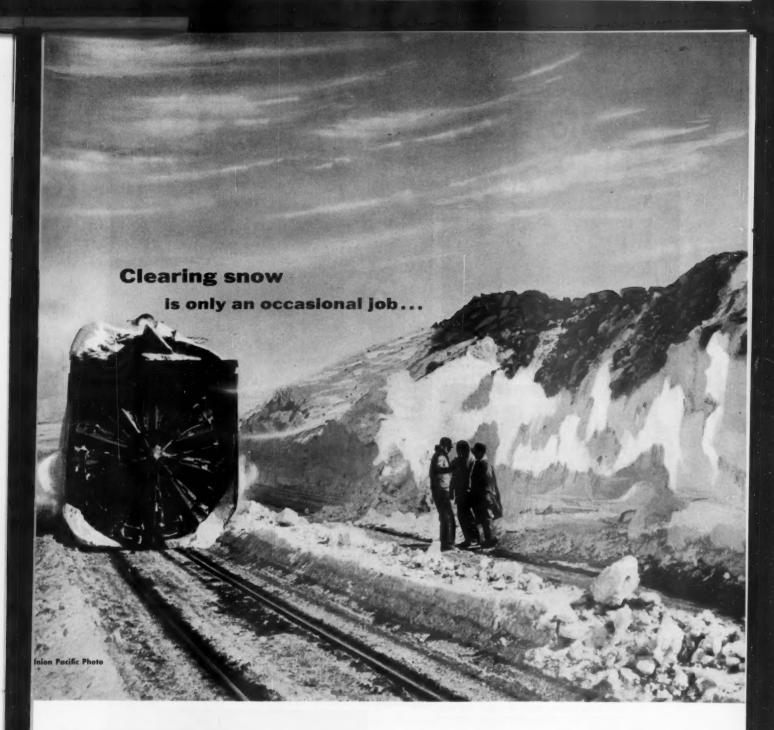
Met-L-Wood panels can now be joined faster and more easily with this new extruded aluminum hardware. Strip A has a grooved slot which provides strong threads for standard 10-24 machine screws anywhere along its length. Strip B can be drilled for screws at convenient points along the panel joint.

PANEL EDGE FITTINGS

Extruded aluminum fittings for Met-L-Wood panel edges improve partition and door appearance and give permanent edge protection. Left below is the fitting for door stops. Keyed slot holds molded rubber bumper firmly and permanently. At right is edge fitting for sliding doors and partition edges. Both fittings are easy to install on Met-L-Wood panels.







IMPROVED LIPOWERS



IMPROVE TRACK

. . . but maintaining a fine roadbed all year round is a never-ending task.

From the bitterest cold of winter to the hottest summer days rails and joints are racked and wrenched by expansion and contraction. The pounding and battering of heavy traffic increase the strain.

Powerful spring washers ease this strain by absorbing shocks and stresses, by equalizing bolt tensions, and by protecting rail ends and joints.

THE NATIONAL LOCK WASHER COMPANY, NEWARK 5, N. J., U. S. A.

A COMPLETE LINE OF RAILWAY SPRING WASHERS

Add more years of service...



Soul with J-M Packings and Gaskets . . . Whether your service requirements are usual or unusual, your equipment can have tight, long-lasting joints. Johns-Manville offers you a choice of many packing and gasket materials to theet your requirements.



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Apply Flexstone Roofing . . . Each ply of this asbestos roofing is a flexible covering of stone. It is fireproof and rotproof. Its asbestos felt construction provides a smooth surface and eliminates recogning.

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HERE ARE 5 ways you can pare your maintenance costs... with Johns-Manville products designed to stand up under the hard wear and tear of railroad service. Your Johns-Manville representative will be glad to give you complete information—or you can get all the facts by writing to Johns-Manville, Box 290, New York 16, N. Y. In Canada, address 199 Bay Street, Toronto 1, Ontario.



Use Transite® Pipe for waterlines... This asbestoscement pipe cuts water line costs because it resists corrosion... withstands vibration... and because its high water carrying capacity helps keep pumping costs to a minimum. Its light weight and easily assembled joints simplify installation.



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help keep the roll in roller freight

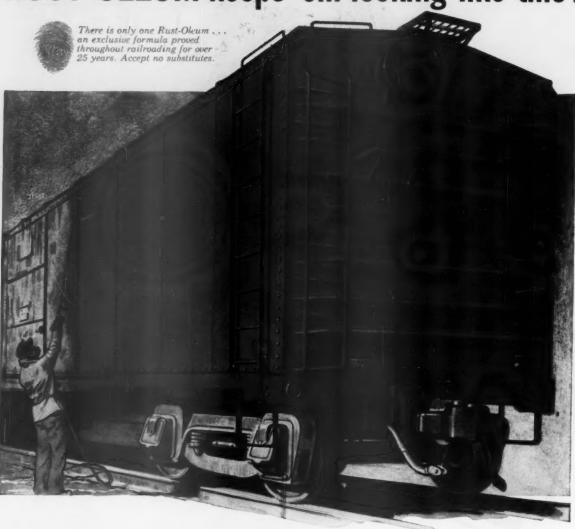
In close to 100,000 roller freight journal boxes, National Oil Seals are performing a vital job quietly and efficiently—making their contribution to the success of roller freight and the elimination of costly hot boxes.

Mounted inside roller bearing journal boxes, National seals keep lubricant in, dirt and water out. They provide uniform, dependable sealing under all operating conditions, all weather extremes. These essential components—which do so much to keep the roll in roller bearing cars and locomotives—are cousins to National Oil Seals supplied for every make of U.S. automobile, truck, bus and tractor. National Motor Bearing Co. has designed and manufactured almost a billion seals for the automotive and farm implement industries; millions more for machinery of all types, aircraft and household appliances.

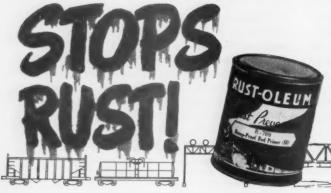
NATIONAL MOTOR BEARING CO., INC.

General Offices: Redwood City, California. Sales Offices: Chicago, Cleveland, Dallas, Detroit, Downey (Los Angeles County), Milwaukee, Newark, Van Wert, Wichita. Plants: Redwood City, Downey and Long Beach, California; Van Wert, Ohio. Products: Oil, Fluid and Grease Seals, O-Rings, Airtron® Ducts, Silicone parts, Shims.

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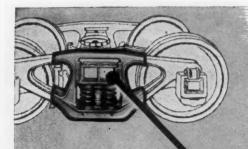


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Conventional Freight Car Truck with Long Travel
A.A.R. All-Coil-Spring Group and Unit Snubber.

(See illustration below*)

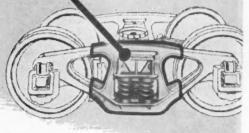
BRIDGE THE

PERFORMANCE GAP

Modern High-Speed Freight-Car Truck

with NEW HOLLAND RS-1

RIDE STABILI



The appreciable "performance gap" that has often been noted, between conventional freight car trucks with A.A.R. long travel all-coil-spring group with unit snubber, and freight car trucks with built-in bolster control, is now successfully bridged.

The new Holland RS-1 Ride Stabilizer, a simple unit of radical but proven design, is easily applied to conventional type trucks and gives them riding qualities comparable to the modern high-speed trucks recently tested by the A.A.R. Write for Bulletin No. 16A for complete technical details.



21/2 Travel Spring Group with Unit Snubber

332 South Michigan Avenue

· Chicago 4, Illinois



























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Linking New England



with the rest of the Nation!

Connecting New England with the West, South and Southwest, the Lehigh & Hudson River Railway forms an important link via Maybrook, N. Y. Modern, powerful Diesel-Electric locomotives maintain a smooth flow of traffic on this essential route.

Sinclair GASCON® Oil in the crankcases of the engines, and Sinclair JET LUBRICANT TM in the traction motor gear cases help maintain this smooth operation.

Both of these fine Sinclair Products for railway Diesel-Electric locomotives have an outstanding record on the Lehigh & Hudson River Railway. Are your locomotives enjoying similar excellence of operation?



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Horizons are unlimited for men with the will to serve. The brilliant searchlight that sweeps the horizon ahead of every Texas and Pacific train is symbolic of the spirit which has changed the great Southwest from a rugged frontier to a vast industrial empire in the span of a lifetime. As we enter a new year, we do so with unbounded faith in the future of our railroad...the



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Specify Smoother-Riding

YOU SHOULD HEAR WHAT CAR MEN TELL US ...

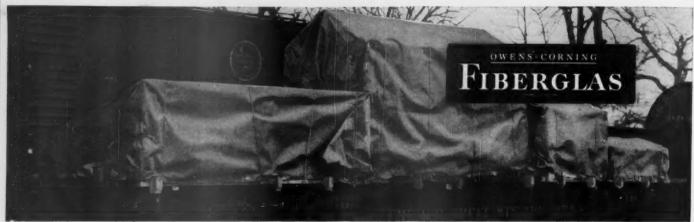
about the quick and easy servicing of Barber Stabilized Trucks.

Actually, in just a few minutes, they've got the Stabilizer parts out, when it's necessary to dismantle a truck for wheel changes or other servicing. Dismantling requires no bars, special tools, prying or other special labor operation. That cuts maintenance costs to the bone. Re-assembly is just as simple, then the Barber Truck goes rolling on again, smoothing out freight car rides...trouble-free because its stabilizing principle is so simple. Contains the fewest possible sturdy parts.

Today Barber Stabilized Trucks are giving DEPENDABLE SERVICE for OVER 100 MAJOR RAILROADS AND PRIVATE CAR LINES who have specified and purchased a total of OVER 352,000 CAR SETS! Standard Car Truck Co., 332 S. Michigan Ave., Chicago 4, Ill.

BARBER

STABILIZED TRUCKS



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WRAPPING: UNDER SINGLE WRAPS OF FIBERGLAS-REINFORCED WEATHERPROOF PAPER, LUMBER STAYS DRY AND UNWARPED THROUGH POUNDING RAIN.

UMBRELLA FOR INDUSTRY

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The Fiberglas reinforcing filaments cannot absorb moisture or conduct it through the paper, so wet weather is no problem. These filaments have a higher strength-weight ratio than any other reinforcements, so you use thinner, lighter wraps to do the job.

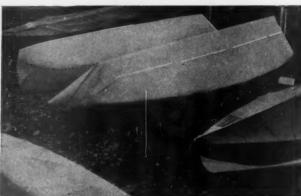
Still, Fiberglas-reinforced weatherproof paper costs no more than ordinary filament papers. Start taking advantage of this economical, positive protection now!

Free sample kit! Here are generous swatches of Fiberglas reinforced papers and tapes, a complete listing of converters and many new ideas for your packaging and materials handling. Please write: Owens-Corning Fiberglas Corporation, Dept. 21-A-10, 598 Madison Ave., New York 22, N. Y.

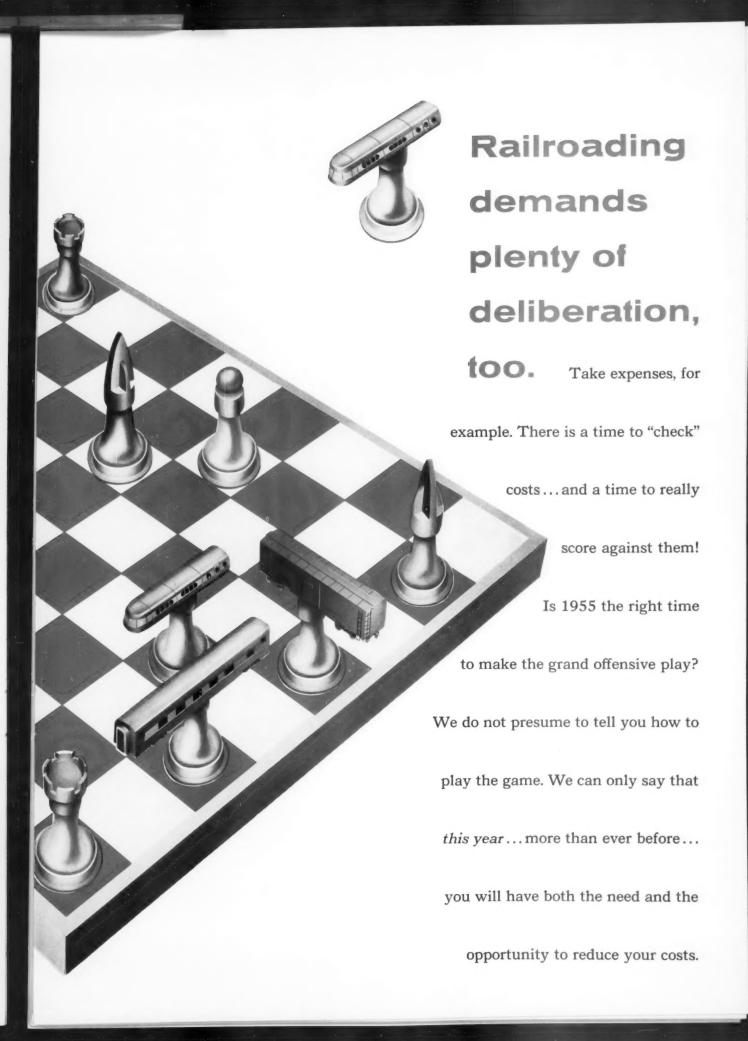
*T. M. Reg. O-CF Corp.



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Trains to make your passenger service really pay.







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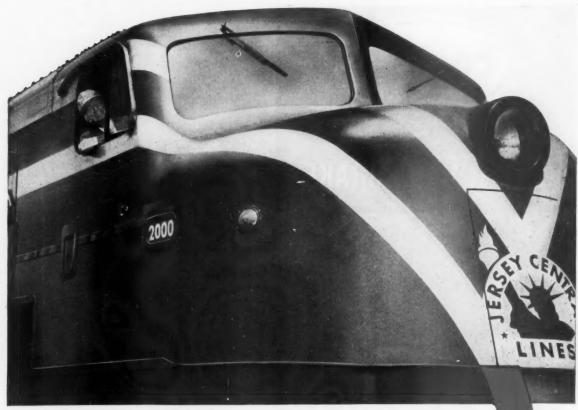
to make better railroad cars.





QCf CAR BUILDERS
TO AMERICA'S RAILROADS









Then...and now...serviced with Esso Railroad Products

The valuable experience of many years in research and development, along with continual testing on-the-road and in-the-lab, stands back of the outstanding performance of famous Esso Railroad Products.

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✔ One-Hand Operation—

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Nothing to Touch but the Wheel

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Ask for an actual service demonstration of this excellent brake which protects trainmen, equipment, and lading. Leading railroads the country over are specifying "Equipco Non-Spin" for safety.

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WELCOME

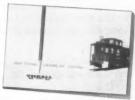
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Write for our booklet "Cost-cutting Customs on 'Customs'." It shows what Thrall can do for you on Special or Standard cars, reconditioned or leased cars.



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UNITED STATES STEEL CORP.



to ashtrays... this railroad buys Nickel Silver Hardware for Beauty and Utility at Low Cost

A representative of Canadian Pacific Railway's purchasing department is shown above, tabulating nickel silver hardware data.

Hinges, door handles, ashtrays and other decorative hardware for the new streamlined stainless steel cars are of nickel silver containing a minimum of 19% nickel, to assure enduring whiteness

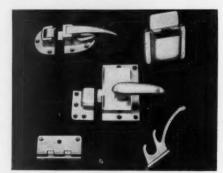
This alloy combines ornamental lustre with ability to resist corrosion and damage from wear, abrasion or scuffing. In fact, you'll find that nickel silver hardware and trim give a refined beauty to passenger car luxury throughout the life of the car. And they also minimize maintenance labor and expense the year round.

Moreover, nickel silver is much more easily cast than other white metals that compete with it for applications involving appearance, strength and durability.

Silvery white all the way through, nickel silver answers the railroad operator's demand for impressive beauty and durability with ultimate economy.

We shall be glad to give you additional information about versatile nickel silver and help you select the alloy best suited to your requirements. Write us today for your free copy of the booklet, "Nickel Silver Castings."

You're looking at some of the nickel silver hardware for Canadian Pacific Railway's new streamliners. It was produced by the Robert Mitchell Company, Ltd., in their factory and foundry at St. Laurent, P.Q., Canada.



Railroad car fixtures produced in nickel silver by Loeffelholz Co., Milwaukee, Wisc., for long lasting beauty and corrosion-resistance.



Sleeping car hardware cast in nickel silver by Universal Castings Corp., Chicago, Ill. These items show the adaptability of this alloy to parts that are useful as well as ornamental.

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET, NEW YORK 5, N.Y.

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For use with mechanical refrigeration or cooling systems. Increases and insures maximum effectiveness of refrigerating condensing units even in the hottest weather. Automatic in operation, responding to cooling demands. Compact. Rugged. Efficient. Accessible.

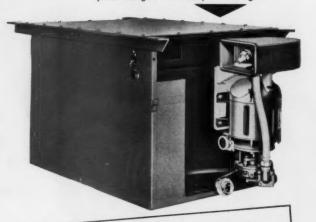


Motor-Pump-Fan Unit swings out on pivot hinges for easy servicing.

What it will do!

- Increase capacity from one to two tons.
- 2 Hold that capacity up to 120° Ambient.
- Revitalize your old units.
- 4 Reduce head pressures.
- 5 Use less power.
- 6 Add life to compressor.
- Reduce load on motor and generator.
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- Reduce air conditioning failures.
- Increase passenger comfort.

Act today to meet those high temperatures of 1955



Easy to install • Takes only 30 inches of under-car space • Benefits will liquidate investment in one year • Stainless steel construction insures long life.

232

RAILWAY DIVISION

WAUKESHA MOTOR COMPANY

WAUKESHA, WISCONSIN

Largest Builders of mobile engine-driven Refrigeration and Generator Equipment

The physical comfort and pure pleasure of passengers traveling to their destination via the Northern Pacific Railway has been considerably improved by the installation of contemporary designed ROTA-CLINE seats

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WHEN YOU BUY





In Chicago ... Coach and Car Equipment Corporation 2860 QUINN STREET



Revolutionary, new ROTONAMIC air cleaner assembly

Standard on American Railroads – FAR-AIR* Filtration Equipment

Self-cleaning centrifugal type air cleaner for engine air operates with constant high efficiency over a wide range of dust concentrations and loads. Requires no maintenance and does not load with dirt. Rugged road testing has resulted in an impressive record of proved efficiency.





Diesel engine filter assemblies, air compressor filters and oil separators: Units for these applications are available for all standard locomotives. Each is engineered for long service life,

engineered for long service life, easy maintenance, simple installation and high performance. Sturdy construction, built to close tolerances.

Dynamic grille: Specially developed for railroads for installation over air inlets in car body, battery boxes, condensers, etc. It efficiently buffs off dirt and snow, keeps units cleaner and substantially reduces filter and other maintenance. For information on these and other FAR-AIR railroad products write P. O. Box 45187, Airport Station, Los Angeles 45, California.

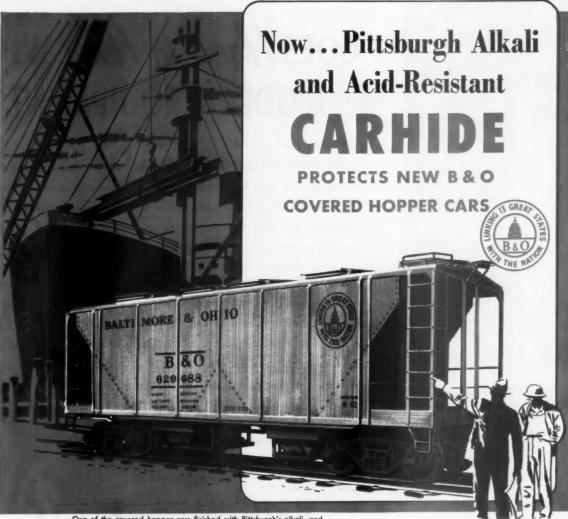


FAR-AIR panel filter: Major American railroads use FAR-AIR panel filters as standard for engine, carbody and passenger car air handling systems. Herringbone-crimp media design

Automatic filter washer and oiler: saves up to 67% in maintenance costs when as few as 100 filters are cleaned per day. Equipment is automatic and permits immediate re-use of filters.

Available in 2 sizes.





One of the covered hopper cars finished with Pittsburgh's alkali- and acid-resisting CARHIDE for the Baltimore and Ohio Railroad Company.

PITTSBURGH'S alkali-and acid-resistant CARHIDE now makes possible an entirely new degree of protection against the effects of cargoes which quickly destroy ordinary finishes.

This remarkable coating for covered hopper, refrigerator and tank cars has been used with great success by a number of leading railroads. It has been tested for periods of from one to six years with highly satisfactory results.

Such tests have demonstrated that ladings of soda ash, sulphur, phosphates, cement, lime, common salt, alkalis, crude oil and alcohol will not affect it. These have also shown high resistance to abrasion as well as to repeated scrubbing.

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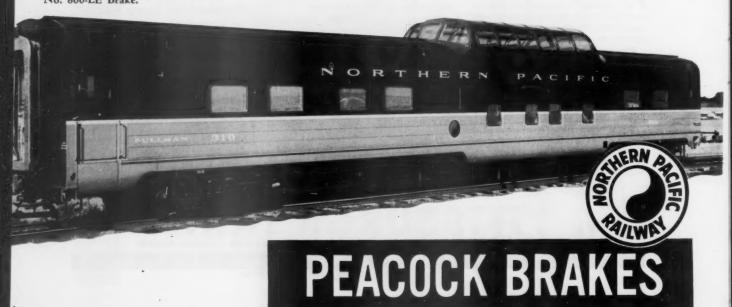
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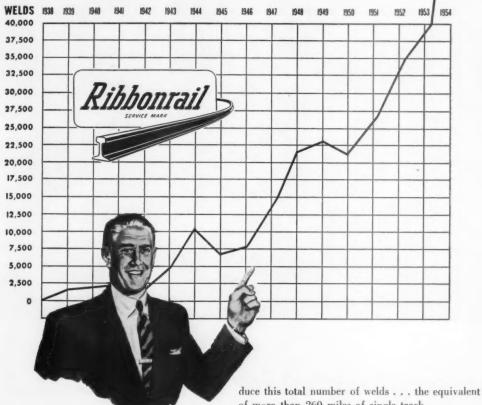


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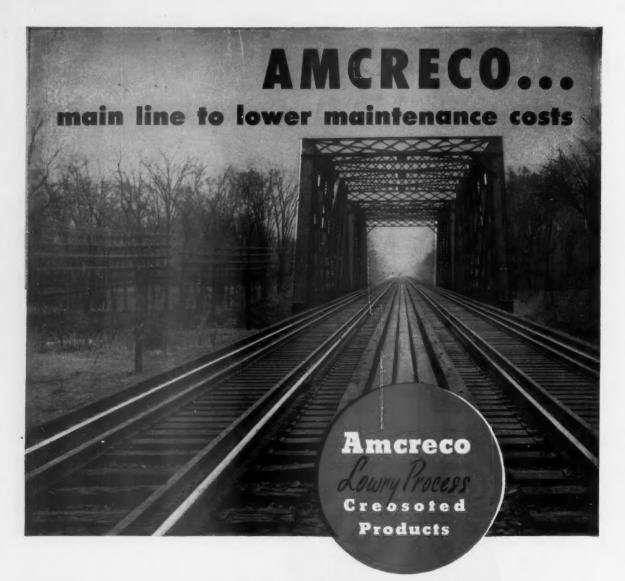
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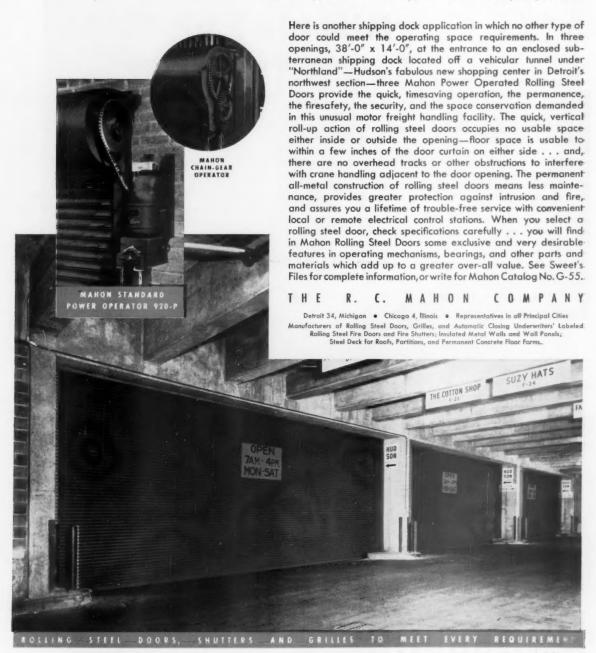


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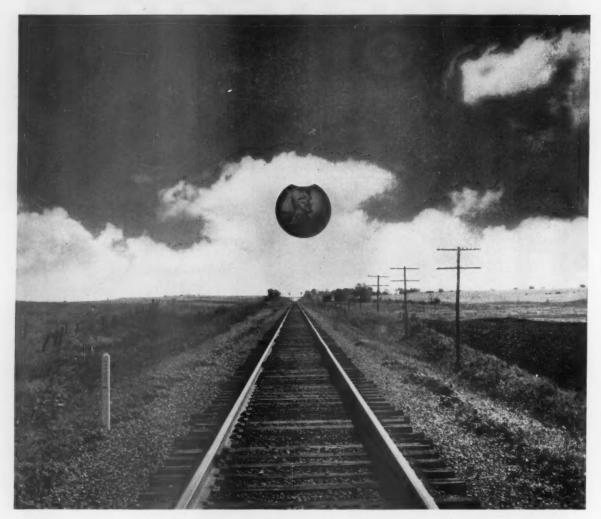
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January 10, 1955



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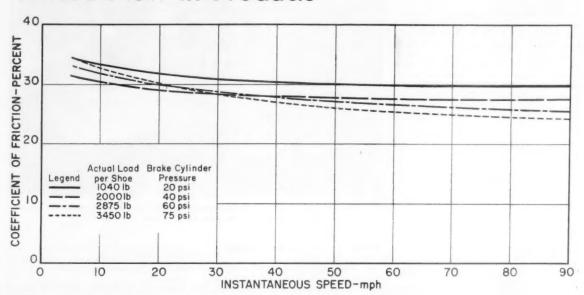


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What's New in Products



HOW the coefficient of friction of the Cobra Shoe varies with instantaneous speeds.

A High-Friction Wheel-Tread Brake Shoe

After six years of intensive research to develop a brake-shoe material possessing a high coefficient of friction, high resistance to wear, strength adequate to prevent disintegration in service—and causing a minimum of wear and thermal effect on the tread of the wheel—the Westinghouse Air Brake Company and the Johns-Manville Corporation, as announced in the December 27, 1954. Railway Age, page 13, have formed the Railroad Friction Products Corporation to produce and market a tread-type brake shoe of a new material which meets these specifications.

This brake shoe, known as the Cobra Shoe, is pressure molded of a composition friction material in an organic binder on a steel back and is interchangeable with iron shoes in standard brake heads. Its weight is slightly less than one half that of an iron shoe.

As indicated in the graph, the Cobra Shoe has a coefficient of friction on the tread of a car wheel which is relatively flat throughout the speed range, though it rises slightly at low speeds. The curve, however, is so flat that there is no marked increase in deceleration at the end of a stop and the characteristic lurch at the end of a stop with the brakes fully applied is minimized. Because of this characteristic, it is unnecessary to employ speed governor control for high-speed braking on passenger cars.





THE COBRA SHOE is moulded under pressure on a steel back.

The coefficient of friction of the Cobra Shoe is approximately four times that of the cast-iron shoe. The high-friction characteristic permits the use of cylinders of one-half the diameter which give one fourth of the force values normally used for comparable stopping distances with cast-iron shoes. Deceleration values are unaffected by water

For new passenger cars, it is estimated that the Cobra Shoe will permit a weight reduction of about 3,000 lb. The reduced stresses caused by the lower braking ratio will permit the design of lighter truck side frames, and weight can be saved in the brake rigging and in the brake shoes them-

selves. For application to existing equipment, little change is necessary except in the smaller size of the brake cylinders.

Experience with more than 36,000, 000 brake-shoe miles indicates a Cobra Shoe life of about three times that of cast-iron shoes. Wheel wear is also reduced. The Cobra Shoe wears evenly and produces a highly polished wheel tread.

In subway service the results have been a noticeably quieter ride and an absence of noise and vibration when the brakes are applied.—Railroad Friction Products Corporation, Wilmerding, Pa.

(More on next page)

More New Products

Clasp Brakes Lightened

A new design of railroad passenger car foundation brake rigging has been announced. Specially designed for use with the newly developed high-friction composition shoe, this brake rigging weighs up to 50% less than conventional brake rigging, according to the manufacturer. The use of the new shoe on Simplex clasp brakes now in service is possible after slight rigging modification. The lighter Simplex clasp brake rigging is reported to be ready for new railroad car construction. American Steel Foundries, 410 North Michigan Ave., Chicago 11.



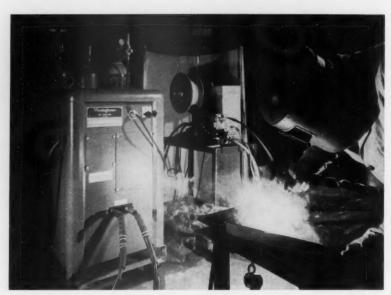
Portable Spray Gun Outfit

Application of paint, varnish, enamel, lacquer, ceramic slurries, insecticides, liquid waxes, whitewash solutions, and other substances has been made possible by the Model R 200 portable Volumaire spray outfit.

The device utilizes a large volume of air to atomize the material to be sprayed, rather than high pressure air. This permits use of a large nozzle orifice and allows the unit to be used for extremely viscous and colloid-suspension materials.

Air at 3,500 cu ft per hr is provided by a blower which is powered by a 1/6-hp motor operating on a 110 volt line. This unit weighs 7 lb and can be slung from the shoulder by a strap.

The spray gun, weighing $2\frac{1}{2}$ lb with its self-contained reservoir, uses one all-purpose nozzle to apply all fluids. The spray can be varied from



The West-ing-arc welding equipment comprises the MS-20 wire, the welder (left), the gun (right), and the wire feed control (center rear).

Welding Process Cuts Costs

A newly developed coated wire electrode—West-ing-arc MS-20—is the key to a Westinghouse Electric Company consumable electrode inert-gas arcwelding process, the main advantages of which are higher welding speeds, better quality welds and lower operating costs. The consumable-electrode process has been used for several years to weld stainless steels, aluminum and other nonferrous metals. The new process now brings its advantages of speed, higher quality and cleaner welds to the horizontal and flat position welding of mild steel in thick-nesses from 1/16 in. up at economical operating costs. It can be used either as a semiautomatic process, where the operator holds the gun, or as an automatic process, where the gun clamped in position; or where the wire is fed through an automatic head. It is not yet developed for vertical or overhead welding.

The MS-20 wire is mild steel of special analysis made in four sizes from 0.040 to 0.091 in. and covered with a thin coating of special composition. This makes it possible to weld with straight polarity—the electrode as the negative terminal—at high melting rates without the poor arc stability, heavy spatter and poor penetration which accompany straight-polarity welding with uncoated electrodes. Comparison of the metal deposition rates of the MS-20 and a typical consumable electrode is said to indicate

that the new electrode is 15 to 22 per cent faster. There is no slag deposit and welds can be painted without cleaning.

Because of the arc stability with the new electrode, less argon gas is required to shield the arc. There is said to be a reduction in total cost per inch of metal deposited of 25 per cent, including welding time, cost of materials, and time required for cleaning and grinding preparatory to painting.

In addition to the wire, the complete new process includes a newly designed welding gun, wire control, and a new constant-potential power source. The electrode gun, rated at 500 amp, is light and well balanced. No tubing is exposed on the gun, which delivers wire, power, gas and water. The tip is designed for high water-cooling efficiency.

The constant-potential power supply is rated 220/400-volts, 60 cycles, 3 phase. Its design includes a selenium rectifier to produce the a-c power. Its continuous rating is 550 amp at 34-volt load. The volt-ampere characteristics are relatively flat: the potential drop from no load to full load is six volts. Efficiency is about 82 per cent and the power factor above 95 per cent at continuous rated load.

The four components—the wire, the gun, the control and the welder—constitute the complete West-ing-arc process. Considered separately, each can be used effectively. Westinghouse Electric Corporation, Arc Welding Department, Buffalo, N.Y..

a ½ in. line to a 12 in. swath. Two valves, independently adjustable and operated in sequence by a single trigger, control air feed and material feed.

Constructed of reinforced aluminum, the gun is fitted with an easy grip composition handle. Roxon, Inc., New York 4.

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DIESEL HYDRAULIC LOCOMOTIVE, 750 B.H.P.



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American Bridge builds 4,890-ft. bridge on relocation project

New bridge over Missouri River has two 372-ft. through-truss spans. This single track bridge over the Missouri River near Chamberlain, South Dakota, is part of the relocation of the C.M. St. P.&P. tracks made necessary by the construction of the Fort Randall Dam and Reservoir. It replaces the old bridge about 9,000-ft. upstream.

The 4,890-ft. structure features two 372-ft. through-truss spans over the main channel which provide a 42-ft. clearance above normal pool. The long bridge also has three 240' deck truss spans, twenty-five 120' deck plate girder spans, and four 98' deck plate girder spans. Approximately 6,200 tons of structural steel went into the bridge, all of which was fabricated and erected by American Bridge for the Corps of Engineers, U. S. Army, Omaha District.

American Bridge, with more than a half century of service to the great railroads of this country, is today the best equipped and most experienced builder of railway bridges in the world. We have the engineering know-how, the fabricating facilities, erecting equipment and skilled personnel to handle any job—large or small—with precision, speed and economy.



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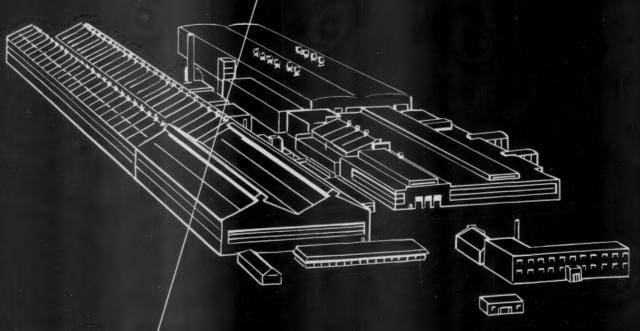
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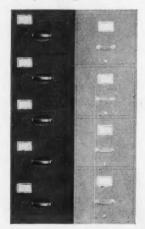
Standard Railway Equipment Manufacturing Co., (Canada) Ltd. Sun Life Building, Montreal

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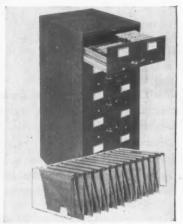
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1955: Significant Changes Ahead

In 1955 the long-term future of the railroad business will be on the way to decision. The year just started can hardly fail to be one of great change. It is the duty and opportunity of all railroad men to exert themselves to the utmost to see that the changes that occur are in the direction of

progress.

In railroading's past certain decisive years stand out. Some are notable for developments in physical science which affected every branch of the industry—for example, the introduction of the steel rail. Other years mark national cataclysms, like wars and panics. Finally, there are years which changed the climate in which the railroads lived—like the shift from state ownership to private, or from public toll ways to integrated carriers; and the introduction of federal regulation.

President Tuohy of the Chesapeake & Ohio aptly characterized the significance of the months ahead when he wrote, at the close of 1954, that "the box score of past performance" does not tell the whole story; that the railroad industry is "on the way up" because "the outmoded rules of the game—recognized to be archaic by legislators, the public and even the President himself—are bound

to be modernized."

Precisely what changes will be made in the "rules" is not known at this writing. The recommendations of the Cabinet Committee on Transport Policy and Organization have not been made public; they may never be divulged, except in part as portions of presidential messages or proposed legislation.

All indications point, however, to:

(1) Emphasis upon de-regulation, rather than upon "regulating the other fellow."

(2) Reliance upon freedom to adjust prices and services to improve the competitive position of the railroads, rather than upon an end to public aids to other agencies.

In short, it appears that a Republican Administration will ask a Democratic Congress to consider legislation which should have at least a fair chance of getting public support. Politics has been defined as the "art of the possible."

It does not seem likely that the railroads will

be given special treatment, nor that their unsatisfactory earnings position will be made the excuse for a new and specialized legal framework. If anything is to be represented as needing "saving," it will be the common carriers as a whole—which have been losing ground steadily to private and contract fleets. Thus, tax relief will constitute probably the abolition (when government needs allow!) of the 10 per cent passenger, and 3 per cent freight, transport tax, which penalizes the for-hire carriers. All for-hire carriers are likely to get more freedom to price, to change services and to merge—along with the railroads.

Some railroaders may be disappointed that the trend is not toward increased regulation for their rivals—i.e., equalization of existing regulation. It would appear that such a hope, though honest, is futile. All evidence indicates that transportation agencies using the public domain and free to enter or withdraw from the market at will (e.g., private and contract carriers) cannot feasibly be brought under regulation of the type imposed on the railroads. Furthermore, to the extent that tighter restrictions are placed on any kind of for-hire or common carrier, the private and "captive contract" transportation would simply be given more opportunity to expand.

The inescapable fact is that the established carriers have lost any exclusive *right* they previously enjoyed to haul the nation's traffic. It is unlikely that they will ever regain that right. Can there be, then, any other feasible step to give them renewed vigor, except to remove from them the greater part of their *obligation* to haul traffic that others would impose upon them—under the "other

fellow's" conditions?

Railroad men have the right to feel disappointment that there is little likelihood of a real start in 1955 to end subsidies of their rivals by the imposition of compensatory user charges and the end of tax exemptions for publicly provided facilities. Fortunately, in the opinion of a growing number of railroad people who know the figures, the railroads have more to gain from de-regulation than from de-subsidy.

Apart from "the principle of the thing," the chief goal of the railroads' long and hard campaign against subsidies has been to end artificial cost advantages enjoyed by their rivals. The fact is, however, that despite public aids for their rivals, the railroads—as a diminishing-cost type of business—have a superior cost weapon now. With freedom to price according to the market, they can exploit this natural advantage at once, without waiting for the mill of politics to grind out complete justice.



Railroads to Get More Freedom

Progress made in 1954 will continue this year—but goal of "freedom to compete under fair and equal conditions" is still far off

By WALTER J. TAFT

Washington Editor

Railroads will advance further along the road to freedom in 1955.

They were on the road and made some progress in 1954; but they are still far short of their ultimate goal—freedom to compete under fair and equal conditions.

That means freedom to take prompt action adjusting rates up or down to meet competitive situations as they arise, and freedom to adjust services, i.e., to abandon unprofitable operations and to spread out into non-railroad transport fields. Also, it means relief from subsidized competition through collection by the government of equitable charges from carriers using publicly provided facilities.

The progress made in 1954 was with the Executive Department of the federal government and the Inter-

RAIL ROAD

state Commerce Commission. Out of the former came President Eisenhower's Cabinet Committee on Transport Policy and Organization, while ICC actions and pronouncements of individual commissioners reflected realistic appraisals of current competitive conditions in

the transport field.

Meanwhile, the railroads fared badly at the hands of Congress—except for the tax relief they got along with industry generally. Last year's session brought enactment of legislation providing for United States participation with Canada in the construction of the St. Lawrence Seaway, and death to the top railroad proposal—the "time-lag" bill which was designed to insure prompt increases in carrier rates as costs rose. (Railway Age, August 30, 1954, page 6.)

Since that time the railroads have presented their "freedom" program to the cabinet committee, and their hope and expectation has been that the committee made recommendations along that line to the President. The committee's report was submitted to the White House last month, but had not been made public when this was written. Moreover, there was then no indication as to whether or not it would be made public as submitted. There was speculation to the effect that any publication of it would come only as excerpts were embodied in President Eisenhower's messages to Congress.

Meanwhile, various stories about the recommendations have been published on the basis of rumors and gleanings from speeches of Commerce Department officials. The cabinet committee was headed by Secretary of

Commerce Weeks.

These stories are understood to have been substantially correct in reporting that the committee's main emphasis will be on reduced regulation of common carriers to give them greater freedom in bidding for traffic which they have been losing to contract and private transportation. The committee is also understood to have been sympathetic to the idea of promoting railroad mergers, to the easing of restrictions on railroad operations of other types of transport, and to giving the ICC authority to override state commissions and thus permit abandonments of unprofitable intrastate services.

In view of the Commerce Department's association with the report, there was considerable interest in remarks on the railroad situation which were made in a December address by Robert B. Murray, Jr., under secretary of commerce for transportation. Mr. Murray

said in part:

"I know of no field in which there is keener competition today than that of transportation. Notwithstanding this fact, we find that many of our federal regulatory policies—especially as they affect the railroads—stem basically from the transportation system as it existed many years ago when the railroads had virtually a monopoly position.

"These outmoded and unrealistic regulatory policies seriously impede railroad progress. In the face of a severe competitive situation, they limit the carriers' ability to go after available traffic and compete on the

basis of their own inherent advantages. . . .

"Under existing regulatory restraints, the carriers are prevented from establishing prices based upon inherent economic characteristics and obtaining traffic which they might best be suited to handle. When a regulatory policy requires the regulatory agency to substitute its judgment for that of the carrier, it inevitably dilutes managerial incentive to indulge in price and service experimentation."

The "Freedom Program"

Even though the cabinet committee's report—or Presidential messages based thereon—fails to embrace parts of the railroad presentation to the committee, the whole presentation will remain the freedom program. It is true, of course, that endorsement by the President of some parts of the program would bring those parts to the fore, giving them priority in presentation to Congress. It was nevertheless the whole presentation which comprised the agenda of the series of "legislative meetings" held during the past five weeks by J. Carter Fort, vice-president and general counsel of the Association of American Railroads.

The presentation was quite specific. It called for specific legislative remedies for such conditions as "inequality" of regulation, "rigidity" of rate procedures, "time-lag" in rate cases, the passenger-deficit problem, and "subsidized competition." (Railway Age, November 8, 1954, page 7.) These are controversial matters, and success with Congress will call for better organization and more effective political alliances than the railroads seem to have had in recent years. That the railroads understand this is indicated by the comprehensive scope of AAR Vice-President Fort's "legislative meetings."

The meetings were set up so that representatives of railroads in all 48 states would be on hand. The first was held at New Orleans December 13 and the last in Washington on January 7.

Presidential support always gives legislative proposals a big boost, but it is a Democratic Congress which came to Capitol Hill last week. Thus there will be a disposition to give close scrutiny to recommendations of a Republican President. Aside from that disposition, however, the congressional climate should be as favorable for the railroads as it was during the past two years of Republican control.

Facing a Democratic Congress

Senator Magnuson of Washington is expected to be chairman of the Senate Committee on Interstate and Foreign Commerce. He is a veteran member of the committee with much experience in its work, even though he seems to have had less direct interest in railroad matters than the former chairman, Senator Bricker of Ohio.

On the House side, the new chairman of the Committe on Interstate and Foreign Commerce is expected to be Representative Priest of Tennessee. He has an understanding of railroad problems which is equal to that of the former chairman, Representative Wolverton of New Jersey.

Aside from promoting legislation they favor, the railroads, as usual, will take positions on proposals they consider adverse. Such proposals will include calls for more public spending on competing transport facilities.

In his role as secretary of commerce, Mr. Weeks, who was also chairman of the cabinet committee, made a "1955 outlook" statement referring to his department's "several new programs in the field of transportation, including the biggest federal airport programs since 1951... and the greatest two-year federal highway program in history."

Seemingly, the railroads have decided that the realistic position to take on programs of that kind will be to advocate the imposition of charges on carriers using such facilities.

Meanwhile, as indicated above, more grants of "freedom" may be expected from the ICC. It is, of course, better to get "freedom" through legislative action than from an administrative agency, but the commission, as now constituted, has been quite sympathetic.

It showed that rate procedures can be made flexible enough to meet competition and provide new services when, for example, it refused to suspend the eastern railroads' rate cut on iron and steel articles; and when it vacated the suspension of "piggyback" tariffs. Also, it upheld railroad positions on important legal questions raised by piggybacking operations.

The commission's views with respect to the provision of what railroads and shippers consider adequate carspotting services at large industrial plants have so changed that agitation for legislation to deal with the matter has abated. This has been pointed up in recent decisions covering operations at several plants.

On the matter of easing restrictions on railroad operations of other types of transport, the commission issued a liberalizing decision last month. It held, in a Rock Island case, that railroads may now get their trucking operations freed from tie-to-rails restrictions—if they propose complete service, especially peddler operations, on routes where competing motor carriers operate on a pick-and-choose basis.

The decision involved rejection by the commission of contentions that it lacks power to issue unrestricted trucking certificates to railroads. It clarified the tie-to-rails policy with a definite statement that the restrictions should be relaxed where "the public interest requires the proposed operations."

On the matter of overriding state commissions to permit abandonments of unprofitable intrastate services, the commission has entered a train-abandonment case in response to a petition asking it to override the Board of Public Utility Commissioners of New Jersey. The plea of the petitioner, the New Jersey & New York, is that the commission take jurisdiction under the Interstate Commerce Act's section 13, ordering the abandonment because continued operation of the train is an undue burden on interstate commerce.

No important calls for new power were expected in commission legislative recommendations which are included in its annual report to Congress. Moreover, the commission was expected to drop its proposal that the so-called "radio" bill be enacted to give it authority over railroad installations of radio and other traincommunication systems.

While the commission may well continue its opposition to "time-lag" legislation, it may also mitigate the problem by taking prompt action on general rate-increase proposals. It has the power to do everything the proposed "time-lag" legislation would order.

Today the accent in property improvement is on ...



YARDS: On December 20 the Southern Pacific placed in operation the first 16 classification tracks of the \$7-million

gravity switching yard it is building at Houston. When completed the yard will have 76 "bowl" tracks.

RAILROADS START YEAR WITH

Large Construction Backlog

Property improvement programs will feature large expenditures for yard facilities, new lines, CTC installations, and grade separation structures

By HALBERT H. HALL
Associate Editor

Carrying over from last year more than sixty large construction projects ranging in estimated costs from \$1 to \$30 million each*, the railroads of the United States and Canada have the foundation for an extensive property-improvement program for 1955. To this backlog must be added a large number of carryover projects on which estimated individual costs are not as much as \$1 million. This work that is approved or already under way will of course be supplemented by important additional projects still in the planning stage.

Recent signs of improvement in the business picture have generally brightened the outlook with respect to railroad earnings which even a few weeks ago was relatively obscure. This turn of events may well clear the road for increased railroad construction activity in 1955 and possibly for several years to come. This is particularly true because the need for modernization and expansion is always most pressing when business is on the increase. As a result, it is reasonable to ex-

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pect that much will be done in the near future to improve the fixed properties, and that projects already planned, but which have been held in abeyance for one reason or another, will be "reactivated" and pushed to early completion.

New Yards Have High Priority

Construction of new and improved yard facilities leads the field of projects under way and scheduled for early completion. There are currently eleven such projects costing \$1 million or more. Among them is the \$31-million yard of the Pennsylvania at Conway, Pa., near Pittsburgh, now reported to be 25 per cent complete. This is the largest single railroad construction project now being carried out.

In addition to the yard projects now in the active stage it is known that at least several roads have longrange plans for additional large-scale construction of

^{*}These projects are listed in this issue; page 175.



NEW LINES: Pioneer car laying track on the CNR's Lynn Lake-Sherridon line in northern Manitoba.



GRADE SEPARATIONS: One of many underpasses built in New Orleans as part of the Union Passenger Terminal project.



STATIONS: Waiting room of the Burlington's new passenger depot at Hannibal, Mo., features ceiling that glows.



FREIGHTHOUSES: Inside Burlington's new freight station at Morton Park (Chicago), Ill.

this type. Among them is the Louisville & Nashville, which is planning new yards at Louisville, Ky., and Birmingham, Ala., estimated to cost \$10 and \$11 million, respectively. Plans for the Birmingham yard call for a facility with a capacity to handle 4,000 cars per day. It will include 48 classification, 13 receiving and 12 departure tracks. Tentative plans for the "Strawberry" yard near Louisville call for 56 classification tracks with a capacity of 2,200 cars; 14 receiving tracks capable of handling 1,200 cars; and a 16-track departure yard with a capacity of 1,814 cars.

New lines comprise the second largest category of construction projects now on the books. There are 14 projects in this category, which will entail the construction of a total of about 500 miles of line. Chief among these is the Canadian National's plan for construction of a line between Beattyville and St. Felicien in the Lake St. John area of Quebec. The entire project, which is to be 304 miles long, is estimated to cost \$35 million. The first stage, involving 155 miles of line between Beattyville and Chibougamau, having an estimated cost of \$18 million, has already been authorized, and contracts have been let.

The largest new line construction project in the United States is that of the Gulf, Colorado & Santa Fe for a cut-off line in to Dallas, Tex. This project is nearing the active stage. The new line will be about 50 miles long and will extend from Sanger, Tex., on the main line to a point near Garland, on the line between Cleburne and Paris.

In this \$1-million category there are 10 projects now under way involving new installations of CTC or improvements in existing signaling installations. Most of these jobs involve the relocation of turnouts and the lengthening and rearrangement of sidings. The CTC projects particularly are expected to result in large operating savings.

The elimination of grade crossings by the construction of underpasses or overpasses will provide a substantial volume of construction which will undoubtedly be increased as additional toll-road projects get underway. While in most cases the money to underwrite these projects comes from governmental sources there are many instances where such projects involve expenditures by the railroads involved.

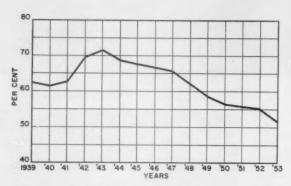
While only a few large passenger stations are included in the current construction picture, it is known that many roads have plans for at least some improvement and modernization work involving the smaller stations. The club-like atmosphere for waiting rooms will continue to feature the station of the future. There also seems to be a trend toward locating stations on the outskirts of cities to get away from parking congestion and interference with street traffic.

Miscellaneous Projects

A rather unusual project for a railroad is that of the Canadian National for the construction of the Queen Elizabeth hotel at Montreal. This project, estimated to cost \$20 million, was started last June. This will be a 21-story, 1,200-room structure.

In the category of miscellaneous projects, each costing \$1 million or more, are 15 undertakings involving widely different facilities. Collectively these projects account for a substantial portion of the work to be done. They embrace bridges (5), car and diesel shop facilities not included in the construction of new yards and terminals (3), docks and ore unloading facilities (2), office buildings (2) and freighthouses (3).

RAILROAD



REVENUE TON-MILES of railway freight traffic in the United States as a percentage of total intercity freight traffic, public and private.

FREIGHT-CAR SUPPLY . . .

A Factor in Traffic Erosion



A GROWING DEMAND is evident for flat cars specially equipped for piggyback service.



FLEETS of mechanical refrigerator cars for the shipment of concentrates and other frozen food products are growing. This car is typical of a substantial fleet of all-purpose cars which provide both cooling and heating.

Adequacy and quality of available cars will influence the distribution of traffic among railways and competing transportation agencies*

By C. B. PECK Consulting Editor

W ithout an adequate supply of freight cars of every type to meet the demands of shippers of every kind of commodity known to commerce, the railroads are assisting competing forms of transportation to build up their growing share of the total volume of traffic offered for movement.

Three factors are involved in attaining the ideal situation as to shipper service, both in quantity and kind. First is assuring that an adequate supply of freight cars of all types is available. Second is the replacement of obsolete cars with new cars which meet the shippers' desires in the matter of loading and unloading and in economy of packaging and protection against loss and damage. Third is the upgrading of box cars. There was no general shortage of freight cars during 1954, but there was a disturbing unsatisfied demand for Class A box cars and a general shortage of box cars during the last quarter.

Special Car Types

The tendency toward the use of specialized types of cars continues. Such cars have been instrumental in expanding industries, particularly in the chemical field, but they tend to increase empty car-miles and so decrease transportation efficiency. Among the types for which demands are increasing are tank cars, covered hopper cars and mechanical refrigerator cars.

Tank cars have been closely associated with the development of the chemical industry, which is still growing rapidly. As new products are offered for shipment in bulk new types of tank-car lining material are being developed. Tank linings in use today include stainless steel, lead, glass, rubber and plastic coatings. Coatings of the latter type—which are impervious to a considerable range of chemical products, do not contaminate them and are slow to deteriorate—are now becoming available. Tank cars in chemical service are ordinarily confined to a specific service. Linings which are readily cleaned are an advantage, however, when cars must be prepared for a change of product.

The covered hopper car first appeared early in the 1930's for use in the shipment of cement in bulk. By mid-1947, when ownership of these cars was first reported separately by the Car Service Division, a few more than 13,000 were reported by the Class I railroads. Last September this number had grown to 37,340. Aside from their use for the movement of cement and other granular and pulverized raw materials of industry, they are now extensively used for the bulk movement of flour and

Within a few years of the advent of frozen fruit-juice

^{*1954} freight car orders are tabulated on page 167.

concentrates, this industry discovered that the quality of the product deteriorated when temperatures were allowed to rise above 0 deg F. Temperatures within refrigerator cars cooled with ice and salt cannot be kept uniformly at or below this temperature. It is now generally accepted as a fact that some source of refrigeration other than water ice and salt is necessary for the transportation of frozen foods, particularly citrus concentrates and fruits in syrups. The Fruit Growers Express and its associated companies—the Burlington Refrigerator Express and the Western Fruit Expressnow have in service 447 mechanical refrigerator cars and another 150 on order. The Santa Fe Refrigerator Despatch has 30 and has announced its intention to acquire 100 or 200 more. The Pacific Fruit Express has ordered 200.

While these cars are being supplied primarily to meet the demand for low temperatures of the frozen-food industry, over half of the Fruit Growers Express cars now in service are equipped to provide a complete range of controlled-temperature services from 0 to 65 deg F with automatic cooling or heating as required, which can be used in fresh fruit and vegetable service. A fleet of 25 mechanically refrigerated cars are also being used in meat service by John Morrell & Co. Other packers are investigating the possibilities.

The camel has his head in the tent. There are at least five mechanical systems in use or under development. First cost is high and maintenance cost awaits determination by experience. Sufficient advantages are being demonstrated, however, to suggest that there will be no lack of effort to overcome the apparent adverse economics of the high first cost.

Aside from the special car types for which there is a growing demand, freight-car design is far from static. Probably the greatest amount of work now being done is on research and developments to improve the reliability of the plain **journal bearing** and its lubrication. Studies of the overall problem being conducted under the direction of the Mechanical Division of the AAR have been divided into three projects.

Design Trends

Lubrication is being studied at the Illinois Technical Institute. At the Franklin Institute the qualities of various bearing metals affecting their performance are being evaluated. The association's own laboratory is testing various lubricating devices, lubricating pads and substitutes for textile waste, and the performance of car oils and additives. Already several alternate methods of applying lubricant to the journal have been authorized for limited application in service. The plain-bearing manufacturers are also working at improving their product.

Roller bearings are now in service on a slowly growing number of freight cars. High first cost is the principal obstacle to their more rapid extension.

Cushion underframes have been in service on a limited number of freight cars for many years. This year a new type has been added to the two which have already been developed. In a new gondola, developed by the Chesapeake & Ohio early this year to attract traffic in bundle and coil steel which now goes by truck, there is installed a floating platform to which the load is

anchored. Bulkheads, which move in slots in the platform floor, are secured against the load by bolts.

Among the general-purpose types of cars which make up the bulk of railway car ownership the tendency toward some degree of specialization continues. In box cars this has taken the form of devices for compartmentizing the load by strapping, by various forms of adjustable bulkheads, and by semipermanent and permanent interior structures. Those with attachments for strapping or otherwise holding bulkheads in adjustable positions are usable for general lading; those with permanent structures are usually adapted to a single product and are subject to the same loss of transportation efficiency as the special types of cars of private ownership.

Another type for car for which there has been an upsurge in demand during 1954 is the flat car with special holding devices for "piggyback" highway trailer service.

Following World War I the American Railway Association established a program for the improvement of railway freight service which, by increasing the average car load, and miles per day, the purchase of new cars and the reduction of bad orders, made it possible for the railroads to handle record-breaking traffic in 1923 "without congestion and with practically no car shortages for the first time in years." This was the beginning of an era of adequate car supply which lasted practically without intertuption until 1943. Since that time there has been no year in which shortages have not been reported and most of the time they have been continuous. The reason, of course, was a lack of material which frustrated the efforts of the railroads to acquire more cars during World War II and continued to do so after the adoption by the AAR at the beginning of the Korean hostilities of the program for the attainment of a supply of 1,850,000 freight cars.

The falling off of car loadings during the past year has greatly reduced the extent of the shortages. But, while open-top shortages have been practically nonexistent,* shortages of box cars have been continuous, rising to substantial net shortages during October and November.

Why place emphasis on the car shortages of the past year when they are so much reduced from the earlier years and have been confined to one class of car?

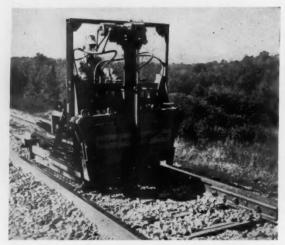
In 1923, when car shortages were practically eliminated as a part of a general program for the improvement of railway service, the railways had scarcely begun to feel the competition of the highways. The objective was to improve public and shipper relations, but there was relatively little risk of traffic erosion, which now exists and, indeed, has been operating for a long time. In 1939 the railways handled 62.3 per cent of the total revenue ton-miles of intercity freight traffic moved by all transportation agencies. The railroad share rose to 71.3 per cent in 1943 and has declined continuously since. In 1953 it was down to 51.7 per cent. It is true that the total volume of traffic handled by the railroads in 1953 is 1.8 times as great as that handled in 1939. If the railroad share of the total continues to decline, however, the volume handled will also eventually decline.

The adequacy of supply and the quality of the freight cars available are among the important factors which will determine the competitive position of the railroads.

^{*}More 52 ft. 6 in. gondolas and 65 ft. mill-type gondolas are needed.



CURVE LUBRICATORS are being bought in larger numbers to help counteract faster rail wear due to dieselization.



NEW MACHINES are constantly being introduced. Here is one of several tracklining units recently made available.

A FAST-CHANGING PICTURE . . .

Uptrend Seen in M/W Field

Activity will rise in 1955 from low levels reached last year—Efforts to keep costs down are bringing far-reaching changes

By MERWIN H. DICK Western Editor

Year-to-year fluctuations in the major indices of activity in the maintenance-of-way field are naturally of considerable current interest, but they are like surface ripples on a pool in which deep and fundamental changes are taking place. Hardly anyone will be surprised to learn that 1954 was characterized by considerable retrenchment in practically all kinds of property maintenance. Moreover, now that a change for the better has taken place in business conditions and business "feeling" generally, it is logical to expect that the upturn will be reflected in a quickening of maintenance activity. Information obtained from railroads on their proposed budgets for 1955 bears out this expectation, and indicates that some indices of activity will undoubtedly rebound rather sharply.

From a statistical point of view the story of current trends in the more important phases of maintenance work is shown by the charts. In those depicting rail and cross-tie renewals and work equipment purchases the bars showing last year's performance and the prospects for 1955 are estimates based on actual figures furnished to Railway Age by most of the Class I roads. In the chart giving total expenditures of the Class I roads for maintenance of way and structures, the figure for 1954 is an estimate based on official ICC figures for the first nine months, while that for 1955 is an estimate made on the

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basis of two assumptions—that there will be a moderate upturn in traffic and that the overall maintenance ratio will remain about the same as last year.

Room for Upturn in Rail and Crossties

Rail and crosstie renewals suffered severely and about equally last year, the first being down about 21 per cent and the second approximately 24 per cent from 1953. In dipping to about 1 million net tons, rail renewals were hardly any lower than in 1952 when a prolonged strike in the steel mills prevented the roads from obtaining their new rail requirements. On the other hand, crosstie renewals, estimated at 22.7 million, went down to an all-time new low.

The drop in total expenditures for maintenance of way and structures, amounting to about 14 per cent, was relatively less than the decline in rail and tie renewals. This paradox is doubtless partly due to the fact that other categories of work—track surfacing, ballasting, weed control, bridge and building maintenance, etc.—possibly received more than their usual share of the maintenance dollar. Another consideration is the fact than M/W employees, along with other non-operating personnel, received substantial "fringe benefits" during the



CONTINUOUS RAIL is destined for wider use. Here a length of welded rail is being placed on the Santa Fe.

year, thereby adding substantially to the cost of doing work.

It may come as somewhat of a surprise that the estimated dollar value of M/W equipment purchases was down only nominally (\$16.5 million to \$16.4 million) last year. On the other hand the number of units purchased declined from 9,500 in 1953 to 7,325 in 1954, indicating some degree of concentration on the larger, more expensive units of equipment.

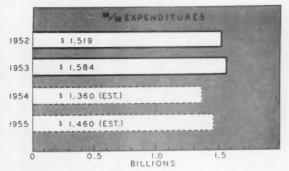
However, this situation contains its own paradox in that the only items of equipment which were bought in larger numbers were several types of relatively small machines. For instance, the reported purchases of rail and flange lubricators jumped from 250 units in 1953 to the surprising total of 430 in 1954. This increase is unquestionably due to the fact that diesel power, the use of which increased rapidly during the year, results in faster wear of the high rails of curves, requiring that preventive measures in the form of lubrication be taken to conserve rail life.

The reported purchase of portable generators likewise went up, increasing from 126 units in 1953 to 135 in 1954. Also, the purchase of bridge and building tools and equipment held up fairly well, with some types being bought in larger numbers, such as portable power saws which increased from 148 units in 1953 to 230 last year. The most likely explanation of the relatively better showing made by bridge and building equipment is that the mechanization of B&B work has heretofore lagged behind that of other maintenance operations. If this is the case, what happened last year could be interpreted as a catching-up process aimed at taking advantage of the cost-saving value of power equipment.

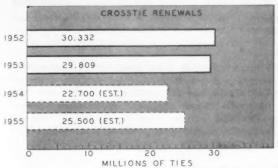
What About 1955?

Even before the business pick-up started in the late fall last year maintenance-of-way officers were making plans for increased activity in 1955. The planning at that time is reflected in the charts, which indicate moderate increases all along the line—in total expenditures, in rail and crosstie renewals and in equipment purchases. The estimates shown for all these indices are on

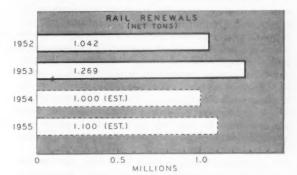
Statistically Speaking...



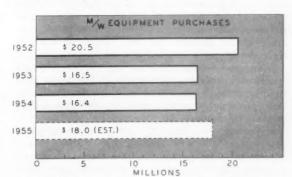
MODERATE GAIN in maintenance of way and structures expenses is expected. All figures are for Class I roads.



NUMBER of new ties inserted in 1954 hit a new low. Estimates are based on data furnished by most large roads.



DECLINE of about 21 per cent in the amount of new rail laid last year compared with 1953.



DOLLAR VALUE of machines bought for M/W use went down; decline in number of units acquired was sharper.



BALLAST REGULATORS are found to be a rapid and economical means of equalizing ballast.

the conservative side, being based for the most part on figures supplied by the roads before there were any definite indications that 1955 would be a better year businesswise. If railroad carloadings show anything like a substantial increase there is little doubt that the amount of work actually done will climb somewhat higher than indicated by the charts.

Effect of Renewal Cycles

In considering future prospects for M/W activity it must be kept in mind that on individual roads some phases of this work—tie renewals in particular and rail renewals to a lesser extent—follow a long-range cycle in which ups and downs occur over periods of years more or less independently of business conditions. The reasons for this situation need not be discussed here, but it does have a definite bearing on M/W activity on individual roads. Furthermore, although the cycles of activity on different roads are not "in phase" with each other, if curves for all roads are plotted they merge into a composite curve which, although smoother, has definite characteristics of its own.

For example, some observers are of the opinion that requirements for crossties are now near the bottom of a trough and that eventually they must return to a higher level. As for rail renewals it is a fact that several large roads find that their actual requirements for new rail are presently lower than might be characterized as normal, with the prospect that their needs will trend to higher levels over a period of time.

Widespread dieselization is having a current effect on maintenance activities, particularly in the bridge and building fields. When a road is in the process of converting to diesels it must of necessity concentrate on the provision of facilities for servicing and repairing this new type of power. During this period it frequently happens that some types of repair work must necessarily be neglected temporarily. With the process of conversion now complete or nearing completion on many roads, they are now beginning to think in terms of catching up on the projects that have been held in abeyance. Paint-

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ing and repairing of bridges and buildings, and modernization of stations, are types of work that may be expected to benefit from this shift in emphasis.

Life on a Treadmill

To the railway maintenance officer each passing year is just another 12 months spent on a hypothetical treadmill on which each forward step toward higher efficiency is carried back almost an equal distance by rising costs of labor and materials. In 1954 this continuing struggle was aggravated by retrenchment due to the recession; any business upturn in 1955 will help but it won't solve the basic problems.

The antidote for high costs is being sought in two principal directions: (1) More efficiency through reorganization of forces and mechanization; and (2) measures to prolong the life of materials and to reduce the amount of maintenance work required.

The first of these efforts is characterized by aggressive development work by both railroads and manufacturers aimed at improving existing machines and devising new ones. There isn't any task requiring labor that has escaped this kind of attention. Consider, for example, the task of renewing crossties, which resisted mechanization for so many years. No longer is it a question of developing machines for this work, but of perfecting those already in regular use to increase their effectiveness.

Along with mechanization M/W forces are being reorganized, sometimes on a system-wide basis, partly for the purpose of welding them into more efficient working units and partly to make the most effective use of the machines now available. The traditional section gang is disappearing and is being replaced by so-called district gangs and by specialized crews, mechanized to the hilt. This is a long-range development which has made marked progress on some roads but on others is only now getting started.

In the realm of materials much is being accomplished in the way of getting longer service life and in reducing the amount of maintenance required. Because of high wages it is now found easier to justify the cost of measures to protect materials and to reduce upkeep. Take tie pads as an example. A few years ago the tie pad was a novelty. Now it is estimated there are about 5 million of them in service, and there are sound reasons for believing this is only the beginning.

Continuous rail, too, seems destined for more widespread use. Several large roads are planning to lay considerable mileages of such rail in 1955. In this connection there is increasing interest in the so-called "frozen" joint which is a more or less standard joint that is made deliberately tight to do away with the traditional expansion gap, the objective being to obtain the same effect as continuous rail.

Despite the changes now taking place in the M/W field, the situation may be summarized in the words of a maintenance officer of a large road. His comment: "We have only scratched the surface. The next 5 to 10 years are bound to bring additional far-reaching changes."

Trends in Railroad Communications

- Radio will be standard equipment on locomotives and cabooses and in all major yards
- Carrier will be used more extensively for obtaining additional circuits from existing line wires for car reporting systems
- Television will expand yardmaster's vision

By ROBERT W. McKNIGHT

New ideas in communications are playing an ever increasing role in the railroad operation, as evidenced by the installation of 5,412 units of communications equipment in 1954,* the second highest number since 1945. Mounting costs and increased competition necessitate saving time when moving freight, not only between terminals, but in yards and freighthouses.

To reduce operating expenses (cutting time and manpower), the railroads will take advantage of the latest developments in communications engineering. Many of the advanced techniques can be applied to existing communications facilities. For instance, in 1954, the railroads derived 139,570 new circuit miles by the use of carrier ("wired radio") on existing line wires.

A recent study on the Texas & Pacific revealed that radio brings about a 5.5 per cent reduction in delay time. Delays involved break-in-twos, hot boxes, bad order cars, meets with other trains, and time lost leaving terminals. Continued growth in road train communications was shown in 1954 when 42 railroads installed radio on 768 locomotives, 614 cabooses and in 138 wayside stations and bought 312 walkie-talkie sets.

Many roads (such as the Missouri Pacific) are reaching the point of having all through freight trains so equipped, and are now engaged in equipping locomotives and cabooses in local and branch-line service.

Walkie-Talkies Save Train Time

Some roads use walkie-talkies in road train service, such as the Seaboard Air Line and the Burlington. By having packsets on the cabooses trainmen can take the radio when they leave the caboose to inspect the train, make switching moves, or "walk up front" when the train makes an unscheduled stop. A dispatcher on one road said he figures that a freight train loses 40 minutes in every unscheduled stop, and that the use of radio has saved 25 minutes of this time.

Although many roads initially equip only locomotives and cabooses, the trend is to install wayside radio stations at the same time, thus obtaining the advantage of communications between wayside operators, dispatchers and moving trains, In 1954, the Great Northern installed road-train radio on 906 miles from Minnesota to Montana including 36 wayside offices.

The Texas & Pacific, too, is installing wayside radio stations on its main line, starting at one end and working toward the other, with the intention of having such radio stations approximately 25 miles apart along the entire main line, affording point-to-point communications to supplement the pole line in emergencies. Other roads, such as the Missouri Pacific, Milwaukee and Southern Pacific, made their initial wayside station installations in storm territory, where line wire prostrations are fre-

Radio Will Be Standard on Locomotives

For the simple reason that for its low proportionate cost (less than one per cent of the price of a diesel locomotive unit), radio greatly increases the utilization of a locomotive, it will become standard equipment on locomotives. Less time on the road, because of radio, means more availability for a locomotive. Some roads have economized by installing one radio set in a diesel with two cab units, with controls in each cab. But when the units are separated, one locomotive has no radio. To provide flexibility of operations, most roads are now installing complete radio equipment in each cab unit.

Installation of radio and power supply involves considerable cost, and cabooses so equipped logically should be operated through between major terminals across many divisions, rather than having each caboose assigned to a certain crew—like a locker room on wheels. The caboose power equipment now being installed by most roads has capacity not only to operate radio but also interior lights, electric hot plates, and exterior marker and spot lights. The convenience of these modern electric facilities has influenced crews on some roads to cooperate in dispensing with the practice of assigned cabooses. By reducing the number of cabooses required the railroads can afford to install radio, including electric conveniences, on enough cabooses for all through freight service.

Yard operations are expedited by radio because yardmasters can talk at will with crews, giving them "upto-the-minute, on-the-spot" instructions. Thus each crew in a radio-equipped yard is able to do more work than it did without radio communications. The Rock Island

¹⁹⁵⁴ installations of communications equipment are tabulated on pages 165 and 166.

and the Chesapeake & Ohio, among others, put radio in the yardmaster's automobile so he can call yard crews when he is away from his office. In 1954, 36 railroads radio-equipped 116 yards, including 435 locomotives and 105 fixed stations, and purchased 251 packsets.

Radio packsets are being used extensively in yards for car checking and car inspecting, evidence being that 42 railroads purchased 251 packsets in 1954 for use in yards. Packsets that transmit on one frequency and receive on another and work in conjunction with a base station are being used on the Union Pacific and Southern Pacific for car inspection work.

The Frisco and Richmond, Fredericksburg & Potomac use small radio transmitters (often called "Dick Tracy" radio sets) in connection with loudspeaker systems for car inspection work. When a man speaks into his radio transmitter, his voice is reproduced on the loudspeaker system. More car inspection radio will be used because car inspectors can save time in their work.

For car checking operations, a yard clerk reads the car numbers and initials into the radio transmitter, the signal being received at a base station which in turn actuates a sound recorder, making a record that can be transcribed later. Most installations have two recorders providing capacity to record car information on two or more trains. The trainmaster at Radnor yard, on the Louisville & Nashville at Nashville, has a "Dick Tracy" radio to direct yard operations. These sets may be used by yardmen to particular advantage in foggy weather.

Some roads are radio-equipping signal and communications maintainers' trucks, enabling them to be called promptly in emergencies. The Chicago South Shore & South Bend put radio on a signal maintainer's truck and in a supervisor's automobile in 1954. One railroad provides radio for the flagman on power equipment used in track and roadway maintenance.

Loudspeakers Standard Equipment

Loudspeaker systems are now considered standard equipment for yards and freighthouses, and communications departments are consulted in the planning and design stages of such projects to advise on these systems. Two examples of such cooperation recently are the Louisville & Nashville's Radnor yard at Nashville, and the Burlington's Chicago freighthouse at Morton Park. Last year, 32 railroads installed loudspeaker system in 44 yards having 909 two-way speakers (talk-backs) and 596 paging speakers.

Several railroads have car reporting systems in service (Santa Fe, New Haven, Southern Pacific and Union Pacific, for example) and more are installing such systems each year. The basic aim of these systems is to provide prompt information concerning car movements to a central office for car service and accounting purposes, and to railroad traffic offices to provide shippers with "up-to-the-minute" information as to the locations of cars. Printing telegraph equipment and extensive circuits are required for this service.

The Santa Fe recently completed installation of a system-wide mechanized car accounting system which handles information concerning 67,000 car movements daily, all reported to the railroad's headquarters at Topeka, Kan., via Teletype. Additional circuits were

OUTLOOV RAILROAD JO I LOUIX

derived by the use of carrier ("wired radio") on existing line wire circuits on the railroad's pole line.

Microwave offers advantages of relatively trouble-free multichannel circuits for communications, particularly in storm areas. It is being used successfully on the Rock Island and the Santa Fe, and is well established for pipe line and power companies and toll road authorities. The stumbling block for more extensive use of microwave by the railroads is the telephone companies' attitude. When the railroads are assured that their facilities including microwave systems will be accorded the same interconnection privileges as existing line wire circuits are, then they will install more microwave systems.

Automatic Telephones Promise Savings

Because of the increased cost of wages for telephone switchboard operators, several roads are now showing increased interest in railroad-owned automatic telephone systems. In 1954, the Louisville & Nashville added an automatic exchange, making a total of 11 such railroadowned exchanges, in as many different cities, which are connected by the railroad's long-distance trunk circuits, so that a railroad man in his office in one city can dial through to a railroad man in any of the other cities.

Thirty-three railroads, including the L&N, in the United States and Canada have in service a total of 88 railroad-owned private automatic exchanges, P-A-X, including about 6,900 lines to telephones in railroad offices, shops, yards and stations. These automatic exchanges range in size from 25 to 600 lines. Some of these automatic exchanges include night-watchmen re-

porting systems and fire alarm systems.

Television may also be used more extensively in yards, furthering the vision of the yardmaster. The Southern Pacific plans an installation in which the yardmaster will have several cameras at his command, some for close-up shots with a telephoto lens and others with a wide-angle lens to give him an overall view of the yard. The Pennsylvania now has a TV camera watching operations at the Post Office in Pittsburgh, enabling a train director to better coordinate switching moves in the area. The Rock Island is planning to use TV cameras at several street crossings in Cedar Rapids, Iowa, to enable one gateman to control several crossing gates more effectively during switching operations.

Communications' Growth Assured

Railroad communications will grow because railroad management desires well-integrated and complete communication systems to meet ever-growing needs for information transmission. The use of the most modern techniques and advancements in electronics and communications engineering will provide such systems. The future promises a greater degree of understanding on the part of both management and communications men of railroads' communications requirements, and of the systems and equipment needed to meet these requirements.



LOCKWOOD RESSLED & BARTLETT BHOTO

EXPENDITURES SHOULD BE \$1.6 BILLION ANNUALLY, BUT . . .

Capital Outlays Are in a Trough

. UNTIL FREIGHT TRAFFIC PICKS UP

By WALTER J. TAFT

The story of railroad capital expenditures in 1955, as always, will be the story of traffic and earnings. It will take a real improvement in financial results to produce outlays even as large as the 1954 total of approximately \$810 million.

Prospects for some improvement are good, according to authoritative year-end forecasts. President William T. Faricy of the Association of American Railroads said carloading figures then indicated that "traffic and revenues for 1955 should be above the 1954 level."

If net railway operating income does not get on a higher level than 1954's basis of between \$800 million and \$825 million, this year's capital expenditures might be off as much as 20 per cent from last year. The 1954 showing was with benefit of a heavy carryover of commitments and plans made in 1953, a year in which net railway operating income exceeded \$1 billion and capital expenditures topped \$1½ billion. There was no such carry-over from 1954 to 1955.

That situation was reflected in first-quarter estimates received by the Interstate Commerce Commission from 126 of the 130 Class I line-haul railroads. Those estimates indicated that the reporting roads planned to cut their expenditures for the current quarter 30.7% below 1954's

first-quarter total. Informed railroad men, however, did not think this accurately forecast the outlook for subsequent 1955 quarters or the year as a whole.

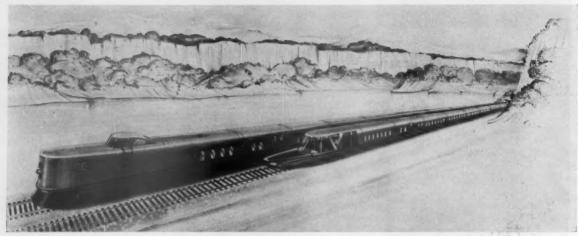
Meanwhile, a great "potential"—a decade of \$1.6-billion years—was spotlighted in the railroad industry's presentation to President Eisenhower's Cabinet Committee on Transport Policy.

"Were the railroads in a strong financial condition with adequate capital funds available to them," the statement said, "they would be able greatly to increase the rate of their improvement programs—to the benefit of the shipping public and the strengthening of the national economy.

Equipment Program Lagging

"It is estimated that if railroad freight traffic volume were substantially increased, and assuming compensatory rates, the railroads would have both the ability and the need, and could profitably invest, about \$1,600 million per year in capital improvement work for a sustained period in the future of 10 years."

The potential as to freight cars was also pointed up by the further slippage last year in the program to build the Class I ownership to 1,850,000 cars. That AAR target has never been pulled down, and the Class I fleet is now more than 100,000 cars short of the goal. (Continued on page 133)



ARTIST'S CONCEPTION of "Train X." Is this, or Talgo, or some modification of these trains the answer to . . .

What's the Passenger Car Outlook?

Car ownership declines—Defense needs give government agencies concern— Lightweight and low-cost idea takes hold—New competitors seek place in the car-building industry already suffering from lack of orders

By C. B. PECK Consulting Editor

The Class I railways handled 23.77 billion passengermiles in 1940. This grew to a wartime peak of 95.88 billion in 1944 and then declined to 31.66 billion in 1953. Notwithstanding the drop following the war, the 1953 volume was 37.5 per cent above the prewar level. At the end of 1940 the Class I railways and the Pullman Company had 27,682 passenger-carrying cars. This had declined to 22,249 at the end of 1953, a reduction of 19.6 per cent; the seating capacity had declined by 23.1 per cent. Orders for new passenger-train cars have averaged about 230 cars a year since 1948 as against retirements of 1,200 annually.

The statement of the volume of traffic in passenger-miles does not indicate clearly the declining position of the railroads in passenger transportation. In 1940 the railroads handled 64.5 per cent of the intercity passenger-miles; buses, 26.5 per cent; and air lines, 2.8 per cent. In 1953 the railroads' part of the business had declined to 46.1 per cent; buses had gone up to 29.3 per cent, and air lines, to 21.5 per cent. Unlike the railroads, whose passenger-carrying capacity had declined although the passenger-mile volume had increased, the seating capacity of intercity buses had increased 85 per cent and that of the air lines, 759 per cent.

A further comparison of the growth trend of these three agencies shows that the passenger-miles per capita of population in 1940 was 180 by railroads, 74 by bus, and 8 by air. In 1953 it was 199 by rail, 126 by bus, and 93 by air. The fact that there was an increase in

the per capita travel by rail, even though it is proportionately smaller than that of the other two transportation agencies, suggests that the appeal of the railroads is far from dead.

Deficits from railway passenger service as calculated by the ICC formula have been increasing for several years until, in 1953, with an operating ratio of 138 per cent, they exceeded \$700,000,000. Considering expenses incurred solely in passenger service in relation to passenger revenues, the ratio is over 93 per cent. This unsatisfactory situation has attracted the sympathetic attention of the National Association of Railway and Utility Commissioners, a committee of which organization has recommended several measures for its improvement. These involve the regulatory bodies themselves, railway managements, railway labor, and the public.

A Vicious Circle

Among the conditions unfavorable to an improvement in patronage of railway passenger service pointed out in the report is "the reluctance of management to invest capital funds in providing equipment to match the comfort and convenience of their competitors," concerning which it says that it is going to be difficult to convince railroad managements to voluntarily invest more of their diminishing capital in better passenger equipment in the face of today's unfavorable prospects.

Thus, to the extent to which better passenger-carrying cars might induce more travel by rail, the situation is in a vicious circle. Passenger service losses keep the railways from spending capital to improve the attractiveness of their passenger cars, but without such im-

1954 passenger car orders are tabulated on page 172.

RAILROAD

provements the patronage will probably continue to decline.

It was during the middle thirties that attention was first seriously directed to making the interiors of passenger-carrying cars aesthetically attractive to the patrons and to providing them with the comfort and cleanliness which air conditioning made possible.

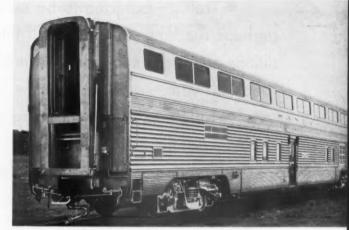
Today, there are many long-distance trains made up of modern rolling stock which provide all the comfort and attractiveness which the ingenuity of the designers has been able to develop. But over 39 per cent of all passenger-train cars owned by the Class I railways and the Pullman Company are over 30 years old and 64.5 per cent are over 25 years old. Interiors of some of the old cars have been modernized and meet the taste of the traveling public fairly well. But there are not enough new or remodeled cars to cover all the primary mainline services and the character of the rolling stock in many of the secondary services is not such as to encourage patronage.

Obsolescence is not alone a matter of inadequacy from the patron's standpoint. It also bears on the operating efficiency with which passenger service can be maintained. The principal advance in this respect is the reduction of weight which the advents of new metals in the early thirties has made possible.

The maximum advantage of the new materials for weight saving was taken in the early articulated trains. These, however, were too inflexible in consist to be practical and passenger rolling stock soon returned to its conventional form, with weights running approximately a third less than that of carbon-steel cars of comparable capacity. Then began a steady increase in weight caused by increases in luxury which added equipment to the cars. Weights per passenger seat in coaches built around 1930 for de luxe service ran from a low of about 2,000 to about 2,700 lb. Early coaches built of the weight-saving materials were in a range from about 1,300 to 1,700 lb. Those built during the last few years have weighed around 2,000 lb per seat or higher.

A hopeful augury for the future is the upsurge of interest in a more radical reduction of weight than that accomplished during the 1930's, which has taken place during the past year. One train with coach bodies lower and lighter than standard has already been ordered by the Rock Island from ACF Industries, Inc., whose Talgo demonstrator played a part in arousing the renewed interest in weight reduction. A group of engineers representing the New York Central, the New Haven, the Pennsylvania and the Chesapeake & Ohio visited Europe last summer to study the Spanish and German lightweight trains of unconventional design. Following the proposal of President McGinnis of the New Haven that a group of railroads get together on a design in order to obtain the advantage of mass production on a group of trains of the same design, this group is understood to have been working on such a project.

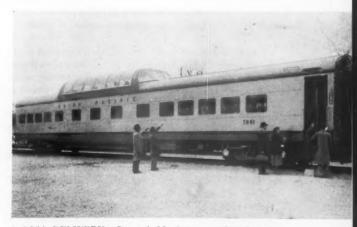
The urge for priority has been tremendous, however. (Continued on page 186)



A 1954 DELIVERY—One of a pair of two-level coaches built by Budd for the Santa Fe.



A 1954 DELIVERY—This M-K-T coach is the first of stainless-steel construction built by Pullman-Standard.



A 1954 DELIVERY—One of 10 dome coaches for the Union Pacific built by ACF Industries, Inc. Underframe is low-alloy high-tensile steel; superstructure, aluminum alloy.

- Traffic—Expected to be somewhat better than in 1954, perhaps reaching 1953 levels. If this optimism is justified, conditions are such as to indicate a mild upsurge in buying by railroads this year.
- Total purchases—Including equipment orders, probably should reach the \$2.5 billion mark.
- Freight car supply—Bad order percentage is high. Class A box cars, flats and long gondolas are in tight supply. Traffic increases will require larger programs for rebuilding and upgrading, as well as new car orders heavier than in 1954.
- Inventories—Purchasing officers agree stocks are at or near "absolute minimums consistent with present-day operations."
- Material prices—Expected to be firm, at least until midyear.
- Material availability—Deliveries are, and should continue to be, "immediate," purchasing officers report. Some lead-time increases on steel items, especially for freight cars, may show up.

All these factors lead to the conclusion that . . .

Buying Will Rise in '55

By J. W. MILLIKEN Traffic and Transportation Editor

With 1955 traffic almost certain to be above 1954 levels, the railroads, after largely living off their inventories for almost two years, should be back in the buying mood. Inventories of miscellaneous materials (i.e., not including fuel, rail and crossties) have trended generally downward ever since the spring of 1953, with the decline from April 1, 1953, to September 1, 1954, almost \$80 million, or 12.6%.

When final figures for 1954 are in this figure is expected to be down another \$5-10 million, at least.

Assuming stable prices and almost immediate availability of materials, it is unlikely that materials inventories will climb back to the April 1954 level. However, as purchases rise lead times will increase somewhat and some buying for inventory may be necessary.

Better traffic also should mean that the railroads will be back in the market for rail and ties. One veteran lumber agent told Railway Age recently he was certain that by mid-year there would be "the damnedest scramble for crossties we've seen in a long time." Since tie producers' inventories are at very low levels, this prediction makes sense. Contributory evidence is the fact that many of the eastern roads have been practically out of the tie market for months.

During 1954 many rail renewal programs were severely curtailed. Indications are that 1955 programs will be stepped up from the 1954 pace, although a number of larger roads are adopting "wait and see" attitudes. Some 1955 railroad betterment budgets will not be set for several weeks yet.

Due to this budget situation, the picture for freight car orders is rather murky at present. However, one supplier of freight car components has estimated that the roads will order from 30,000-40,000 new cars. While this figure is not too encouraging to the car builders, it does represent a betterment of the 1954 situation. Railroads and their refrigerator car affiliates have told

HOW PURCHASING OFFICERS APPRAISE 1955 PROSPECTS

"I feel sure that in 1955 the pressure for curtailing purchases will diminish as carloadings and revenues increase. We do not look for any radical improvement but we certainly expect an improvement... We do not look for much in the way of price changes during the coming year as we expect a competitive season throughout 1955. There will be ample material available and the only thing that will prevent our buying considerably more in 1955 will be a lack in increase in revenue." — W. A. Clem, purchasing agent, Reading.

"We have about reached the limit on inventory reduction and, no doubt, this will be reflected in increased purchases."—V. E. Mc-Coy, chief purchasing officer, Milwaukee.

"Railroads have considerable deferred maintenance which will have to receive consideration during the coming year. Many railroads will have stocks of rebuilding materials which will be available for this purpose. Stability is indicated in the price situation for the first six months of 1955, but as railroads' suppliers have wage adjustments confronting them in the middle of the year, prices for the last half of 1955 are not predictable."—Purchasing agent, a large eastern railrod.

"In appraising the prospects for 1955, there is evidence that the modest upswing in business which got under way during the last quarter of 1954 may continue for at least the first half of the new year. Heavy industries such as steel and cement will play a leading part in the movement to higher production levels and rail traffic will, of course, benefit accordingly."—B. W. Roberts, vice-president, purchasing and stores departments, Canadian Pacific.

Railway Age they would buy a minimum of about 11,000 cars and would rebuild about 13,500 more. Heavy repairs are scheduled for a minimum of 23,000 cars by a small group of roads, but this figure is by no means complete. Contemplated passenger train car orders are reported as 92, while a minimum of 428 cars will be rebuilt, and 111 will receive heavy repairs.

Factors which, with the prospects of better freight traffic levels in 1955, point to stepped up car building and rebuilding programs are:

RAILROAD TO TEUT

 The perennial shortage or tight supply of Class A box cars, flats and longer gondolas;

• "Piggyback" traffic will continue to increase. Most freight cars used in this service have been withdrawn from general service and must be replaced;

• The demand for more mechanically refrigerated cars. Presently, opinion seems to be that new—rather than rebuilt—cars are best for mechanical refrigeration.

New communications equipment and facilities, as well as the larger scale data processing machines, should have rather high priority on the railroads' shopping lists this year. There are a lot of unfilled authorizations for fixed-point-to-mobile-station radio, many of which should be in the "filled" category before the year is out. And more roads are mechanizing car reporting systems, involving both improved communications equipment and business machines. The year also should see a number of orders for medium-sized digital computers, as well as the larger calculators.

Everything points to a good—but probably not record—buying year in the railroad industry. Only the failure of freight traffic to rise to something like 1953 levels will change this picture. Predictions do not always turn out to be correct, but conditions at the end of 1954 do make business prospects for 1955 look good.

CAPITAL OUTLAYS

(Continued from page 129)

Some 60,000 new cars must be installed each year if retirements are to be offset. A program only on that "stand-still" basis would be something like a \$390 million undertaking by itself.

The 1954 total of about \$810 million is an estimate based on actual expenditures for last year's first three quarters and forecasts for the fourth quarter as reported by the railroads to the ICC. The reports were summarized by the commission's Bureau of Transport Economics and Statistics in its December 1954 "Monthly Comment."

The nine-months total for the 130 Class I line-haul roads was \$647,019,000, including \$420,500,000 for equipment and \$226,519,000 for fixed facilities. The 126 roads which submitted fourth-quarter estimates expected then to spend \$160,100,000, including \$81,929,000 for equipment and \$78,171,000 for road.

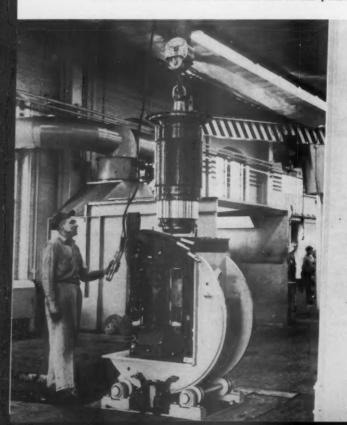
Thus, the ICC bureau put the prospective 1954 total at \$807,119,000, including \$502,429,000 for equipment and \$304,690,000 for road. The final figure for 1953 was \$1.259,794,000.

The 1955 first-quarter estimate was another 126-road figure. It put prospective expenditures for the current three-months period at \$166,360,000, including \$105,773,000 for equipment and \$60,587,000 for road. The four roads which submitted no estimates made expenditures totaling \$5.9 million in last year's first quarter.

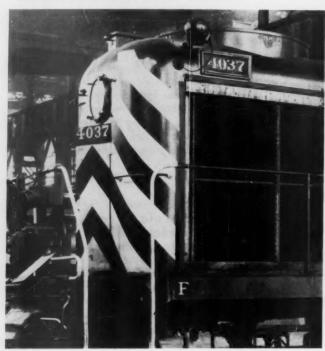
The 130-road total for the first three months of 1954 was \$240,093,000. That included \$167,460,000 for equipment and \$72,633,000 for road.

WHITING

MODERN servicing shop (above) with heavy crane facilities and drop table. SHOP-BUILT assembly stands (below) have limit switches at the horizontal and vertical positions.



RAILROAD UUTLUUN



FACILITIES for handling extremely heavy parts, such as shown

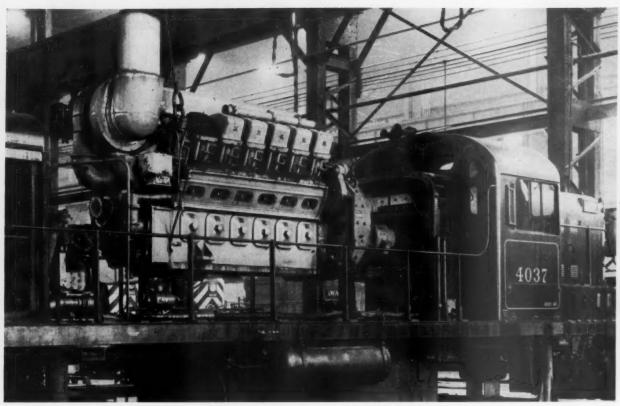
Locomotive and

By H. C. WILCOX Mechanical Editor

And A. G. OEHLER

In just the short space of 10 years the railroads have placed in service about 22,000 diesel-electric locomotive units. In a correspondingly short period a great many locomotive shops, engine terminals and other servicing facilities have been completely rebuilt, or built new, at a cost to the roads of many millions of dollars. Some idea of the extent of the shop modernization program can be gained from the fact that one large road, in that period, spent around \$20 million.

The railroads must now decide what their policy, with respect to diesel-electric parts and rebuilding, is going to be from now on. Definite indications already point to the conclusion that the larger roads, in the interest of economy and self-protection of service, are going to go into parts reclamation, repair and, to some extent, production and are setting up the facilities with



here, are a necessity in the diesel shop and are being installed as rapidly as possible.

Car Shops Undergoing Changes

which to do it. The medium sized and smaller roads, on the other hand, are certainly going to move with great caution before setting up elaborate facilities for locomotive repair work.

In the car field the major expenditures are for the rearrangement of facilities for speeding up progressive car repair operations with attendant material handling facilities to reduce operation time. The wheel shops continue to be the object of extensive expenditures dictated by the absolute necessity of more accurate work on wheels and axles, increased output to meet greater demands and the continued pressure on the part of the AAR Wheel Shop Practice Committee to improve the quality of shop work.

Diesel Shops Are Being Modernized

Changing conditions make it necessary to give almost constant attention to the work done in the diesel-electrical shop. Two years ago, the shop committee of the AAR Electrical Section suggested that for average operating conditions, a railroad was not warranted in doing motor and generator rewinding unless it operated at least 200 locomotive units. Since that time, the outside service shops have so reduced their charges for motor and generator rewinding unless are suggested to the service shops have so reduced their charges for motor and generator.

erator overhaul and rewinding that it would appear that few railroads can afford to do their own work.

Also as we approach the time when nearly all rail-roads in the United States become wholly dieselized, manufacturers are giving more attention to maintenance and to class repairs. On the other hand, the rail-road which operates locomotives must have a shop, the shop needs justification, and railroad operators are reluctant to relinquish any control of their maintenance operations.

The 25,000 or more batteries now in use on dieselelectric locomotives, added to those already in service for other purposes, justify railroads to install new battery shops. These batteries represent a considerable investment, and their life and the service they give is materially influenced by proper care.

Another item in the electrical shop which needs immediate attention is high-voltage testing. ICC specifications for such testing were evidently based on procedures used by the manufacturers for testing new equipment. When applied to wet insulation which is good when relatively dry, or to old insulation which is still too good to destroy, high-potential testing can and does cause expensive damage. Fortunately, the specifications are not rigid but they need consideration.



ONE MAIN TRACK, with CTC, now serves in some territories where double track was previously in service.

More Signaling Installations...

. . . because new systems are being developed to meet changing conditions in the operation of faster trains over fewer tracks; to consolidate the controls of interlockings; and in yards, to control switches and retarders

By JOHN H. DUNN Signal and Communications Editor

Using new techniques, extensive installations of signaling will be made in 1955, the primary purpose of which will be to reduce operating expenses by eliminating numerous interlocking levermen, telegraph operators, crossing watchmen and retarder operators.

Devices alongside a track can be used in the near future to employ infrared rays to detect hot boxes and then to actuate signals to warn enginemen.

By adopting syncrostep, high-speed multiplex, quick-code and carrier (wired radio) in combination with control machines now being developed, the controls of several interlockings, up to ten or more, even in a heavy traffic terminal territory, will be consolidated in one interlocking control machine. Two such projects are under way now, and four others are being actively considered, one of which will eliminate 40 levermen. On 466 miles of mostly single track where centralized traffic control was installed progressively in recent years, 8 dispatchers and 58 operators have been retired or transferred, and comparable results are expected from other installations.

Employing radar and other modern electronic equipment, the retarders and switches in classification yards can be controlled automatically, thus dispensing with most of the men now required for manual control systems.

To avoid purchase of new steel for rail renewal, and to save labor costs for track maintenance, several rail-roads in 1955 will take up extended sections of one or more main tracks in multiple track territory, the necessary track capacity being secured by installing centralized traffic control for train movements both ways on each of the remaining tracks. The Southern, the Pennsylvania and the Rock Island are to remove extended sections of second main track, and the New York Central budget for 1955 includes a project to remove two of four main tracks on 300 miles of line.

By using new electronic equipment announced and applied on two railroads in 1954, automatic control of crossing gates is now more practical than previously.

Diesel locomotives permit traffic to be handled in fewer trains, operated at higher average speeds, reducing trackoccupancy time. As a result, with modern signaling, fewer tracks will meet all traffic needs in some sections.

For example, in previous double track sections, one track has been removed and the remaining track equipped with CTC by the Milwaukee, the Erie and the Boston & Maine. In 1954, on 167 miles between Cincinnati, Ohio, and Tateville, Ky., the Southern removed alter-

1954 signaling installations are tabulated on pages 163 and 164.

RAILROAD UUTLUUK

nate 10-mile sections of second track, leaving separate sections of approximately 10 miles with two tracks. Throughout this territory CTC signaling was installed for train operation in both directions, both on the double tracks and all sections of single track. This progressive development having proved satisfactory, the Southern is now proceeding with a 70-mile extension of this single-track-double-track arrangement, with CTC.

A different problem is to increase the capacity of double track to obviate the need for a third track, or to permit removal of other main tracks. By installing double crossover layouts about 10 miles apart and by adding power switch machines in centralized traffic control to run trains both ways on both tracks, fast trains are run around slower ones, and all are kept moving without some wasting time on sidings or waiting in the yards. This has been done successfully on extended mileages on the Rock Island, the North Western, the Missouri Pacific and more recently, in 1954, on the Frisco and the Union Pacific.

On a resignaling project completed in 1954 by the Burlington on 38 miles of three main tracks between Chicago and Aurora, the center track is signaled in both directions all the way, and various sections of the two other tracks are signaled both ways. This territory handles 144 scheduled trains daily including 66 suburban passenger trains that make many stops.

Signaling for High-Speed Turnouts

New York Central plans were revealed recently by Alfred E. Perlman, president. He said, "all four-track mainline on the NYC will be cut back to double-track, with centralized traffic control installed to retain approximately the capacity of the present four-track line."

The practicability of utilizing alternate sections of single and double track, or two-track and three-track, was advanced in 1954 by the development, on the Erie, of the new No. 24 turnout applied in equilateral layouts, where diverging moves can be made at 70 mph, and eventually at 75 mph. These turnouts are in CTC territory including signaling to direct trains at the speeds for which the turnouts are designed.

In the interlocking field, the thinking today is that the control of several interlockings, even in heavy-traffic terminal territories, can be consolidated. This is now more practicable than previously, with new electronic devices, syncrostep, and multiplex high-speed line systems that have capacity to handle numerous outgoing control and incoming indication codes simultaneously, and all on two wires. At Newark, N. J., the Lackawanna recently combined three interlockings. In New Haven, the New Haven is consolidating the control of several large plants. At Chicago, the Burlington is combining the control of four interlockings in terminal territory. Better coordination of train movements and fewer delays will result from these consolidations; and operating expenses will be reduced.

The ultimate in reducing manpower required to control interlockings was brought about in 1954 by the ap-

plication of an electronic train-identification system for the automatic selective control of switches in a junction interlocking of the Chicago Transit Authority.

To operate power switches and car retarders in yards, new electronic devices are being developed to expedite operation and reduce operating expenses. Previously each towerman had control of switches and retarders in a certain area, so that for a large yard there might be three or more towers.

Savings in Yards Also

In 1950 the Canadian Pacific and the Illinois Central made the first installations of automatic switching—i.e., a system in which automatic controls of power switches are set up before cars pass over the hump, the controls being initiated by a man pushing a button corresponding with the classification track to which a car, or cut of cars, is to be routed. In 1952, the Reading incorporated these switch buttons in the panel in the tower, so that the same man controlled all the switches as well as all of the retarders in a yard with 33 classification tracks.

In these automatic switching installations as many as four or five controls could be punched and "stored" prior to arrival of cars at the crest of the hump. Whether it is desirable to "store" more than six controls depends on local circumstances. If it is, a system can be arranged to set up automatic switching in advance for an entire train of 120 cars or more. This is done in a system developed on the Union Pacific and installed on 8 tracks as a demonstration in 1954.

In a classification yard at Portsmouth, Ohio, where retarders were installed years ago, the Norfolk & Western last year modernized the track layout, reducing the number of retarders from 12 to 5. Modern systems of retarder speed control and automatic switching control were installed. Here the automatic switching controls are prepared in tape form, so that controls for perhaps 150 cars or more can be punched and stored on the tape before the cars are started over the hump. This is the first use of this system of storing controls.

Automatic Control of Retarders

Automatic control of retarders also is under development. A system of automatic retarder control, in which the speed is measured by short track circuits, was installed in a yard on the Milwaukee in 1952. At Gary, Ind., in 1953, the Elgin, Joliet & Eastern made a 16track test installation of automatic retarder controls using radar equipment for speed measurement, and this system, with refinements, was installed in 1954 in the entire 58-track yard. In 1954 the Union Pacific made an 8track test installation at North Platte, Neb., using radar for speed measurement. A new factor of this installation is that the automatic control takes into account the distance a car is to go on a classification track before reaching other cars already standing there. Large yards including some or all of these new developments are nearing completion on the Southern at Chattanooga: on the Seaboard at Hamlet; and on the SP at Houston.

Progress was made in 1954 in the installation of devices for detecting broken car wheels in moving trains, and a rapid increase in their use is looked for. Wheel (Continued on page 184)

RAILROAD



POTENTIAL applications of Univae are pointed out to C&O President Tuohy by Finance Vice-President Kusik. Related work is grouped together, regardless of the department by or for which it is performed, bringing out clearly the systems concept.



RADAR SPEED METER at the UP's North Platte, Neb., yard measures speed of moving car as it enters retarder as well as its speed within retarder. Computer in tower actuates retarders to apply proper retardation so cars will couple at less than 4 mph.

Computers to Control Operations

"Giant brains" adjust switching speeds and reduce damage to lading and equipment—Their use makes paper work current, not ancient history

By J. W. MILLIKEN Traffic and Transportation Editor

Electronic digital and analog computers which will be —or have been—put to work by the Chesapeake & Ohio, Great Northern, Southern and Union Pacific are bringing far-reaching changes to the railroad industry. Not only will these "giant brains" cut costs of operations and paperwork, but, more importantly, they will help to change—and to some extent already have helped to change—traditional thinking about the functions of research and planning. And when this thinking has been implemented by activity, the result will be railroads better able to adapt themselves quickly to all kinds of changing business conditions.

C&O Sets Up Research Group

Last year the C&O announced that sometime in 1956 it would put a Remington Rand Univac to work handling some of its paperwork. In order to determine whether a "giant brain" would be of value to the railroad, C&O set up a research group, whose special knowledges were systems and procedures, operations research techniques, and computers, to study computers and their possible applications to railroad paperwork. The research group worked with a committee of railroad men from several

departments, whose contributions were their special knowledge about the inner workings of those departments.

This method of developing a solution to a problem has many advantages. Among them: (1) It allows the line departments full participation in decisions but does not take men already overburdened away from their day-to-day tasks for long periods; (2) it applies to problem stating and solving the specialists' knowledge; and (3) since the research group applied itself full-time to the study, the process of change was speeded up immeasurably.

Takes Time to Get Ready

Even with computer "experts" on the job 20 manyears of study in getting ready for a computer seems to be about average for firms now using—or getting ready to use—one of these new devices, yet obviously the faster the change is made the better, once the opportunity has been developed. And, the sooner the computer is at work the sooner the savings and other benefits attributable to it will be realized. To some extent the staff specialist concept has "caught on" in the railroad industry, but that the coming of the computer will further advance the idea is certain.

It is noteworthy that the advisory committee to the C&O's research group was interdepartmental in nature.

This approach to problem stating and solving is founded on evidence that most major railroad internal difficulties involve directly the functions of more than one department

Furthermore, because the cost of the computer is so much it makes sense to give it as much work to do as it can handle. Therefore, logic dictates that whole areas of related paperwork be put on the computer, e.g., revenue accounting, traffic statistics of all kinds, car records, etc.; or much of the paperwork involved in purchasing, storing and accounting for materials and supplies.

Advantages to Operating Departments

The interdepartmental approach to paperwork simplification, which will be forced—to a certain extent—
by the computer, should offer advantages to the operating departments of the railroads to secure their interest in the project. Paperwork generally has been considered something done mainly in the accounting department.

Always keeping the computer loaded with work will lead to studies revealing that upward of 60% of the total railroad clerical force is in the operating department, without counting those in purchasing, stores, personnel, legal or traffic work. It seems likely, therefore, that indirectly the computer will play its part in bringing about an interest in paperwork simplification on the part of the operating departments.

Railroad men at all levels for years have been embarrassed by lack of up-to-the-minute figures on which to base their decisions. That the computers can do this is borne out in the experience of the Great Northern. (Railway Age, October 11, 1954, page 27.) The GN computer was designed to play a part in the weighing operations of the railroad at its iron ore loading facilities at Superior, Wis. Largely due to the action of the computer, the railroad now has up-to-the-minute data on exact tonnages of ore being moved to the docks. This eliminates the necessity for last-minute rush moves to the docks to fill a shortage, and prevents dumping too much ore at the docks, thus making the operating department's job easier and less costly. And the traffic department benefits because the computer solves some problems for the shipper, too.

Do More Than Paperwork

But "giant brains" can do more than paperwork for railroads. Presently at the North Platte, Neb., hump yard of the Union Pacific, an analog computer system developed jointly by the railroad and Reeves Instrument Corporation is helping the UP "program" switching on the hump and control the speed of rolling cars so that they couple up to others in the classification tracks at less than 4 mph. (Railway Age, November 3, 1954, page 9.)

While this method of speed control should reduce damage to lading of the cars, from an out-of-pocket cost point of view it is expected to save even more in reduced damage to equipment. Damage to equipment in hump-yard switching may run well over \$45 million yearly. (This statement is based on (1) damage figures for one hump yard, published in Railway Age, November

4, 1950, page 56; and (2) 1953 car movement figures.) Substantially reducing this outlay would pay for a lot of computer systems, and perhaps make it economically feasible to install more hump yards.

Analog computers such as the one controlling switching speeds for the UP may make possible the dream of the New York Central's chief engineer—maintenance of way, J. P. Hiltz, Jr. (Railway Age, May 24, 1954, page 31.)

Mr. Hiltz thinks that it should be possible to develop a machine which can be programmed to perform a number of maintenance of way functions either simultaneously or in sequence. Such a machine would replace, perhaps, a number of the machines now being used, for example, in a rail-laying operation. As of the moment, the writer has been told, such a machine, with its operations governed by a computer, is technically feasible, at least as far as the electronics industry's engineers are concerned.

Southern Interested Too

The C&O, GN and UP are not the only roads interested in computers. The Southern, too, expects to put one to work soon. C. M. Davison, Jr., the Southern's comptroller, says, "We no longer have any doubt that a high-speed computer will be economical in our operation within the accounting department." Mr. Davison indicates that payroll and freight audit probably will be the first paperwork to be processed by the electronic computer.

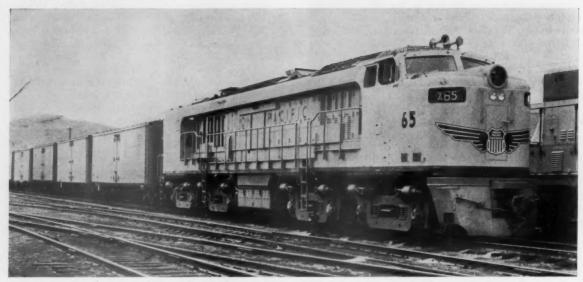
Both Univac and International Business Machines Corporation's 700 class computers (702 and 705) are under consideration. The Southern's management, however, knows that getting ready for the computer will require some time.

No "Cash and Carry"

The manufacturers cannot accept orders for computers one day and deliver the system the next day. Railroads may have to settle for something less than one of the larger computers to get deliveries in 1955. The Southern, for example, may elect to wait for installation of the larger "brain" in 1956. It is interesting to note, in this connection, that the Southern's operating vice-president, D. W. Brosnan, speaking before the Railway Systems and Procedures Association in Chicago last November, indicated that he thought a computer might be able to help the road's operating department do a better job of distributing empty freight equipment. Mr. Brosnan said that if the accounting department's computer had some idle time he'd like to try to use it for car distribution work.

At least three other railroads are known to be greatly interested in the large-scale digital computers, such as Univac and IBM's 705. And a number of others are interested in smaller machines produced by Burroughs, National Cash Register, IBM, and Remington Rand. With the promise these systems hold for the railroads, railroading in the future should be not only more interesting but more efficient because employees and management will have significant and timely figures at hand to assist them in making decisions and supervising operations.

RAILROAD UUTLUUN



ONE OF THE LATEST UP gas turbine-electric locomotives hauling a train east through Rawlings, Wyo.

What Next in Motive Power?

Acceptance of the diesel-electric is an established fact, with the replacement job nearing an end—Turbines, either gas or steam, look like the next step

By A. G. OEHLER
Electrical Editor

And H. C. WILCOX

Mechanical Editor

On October 1 last, the railroads of the United States had 23,643 diesel-electric motive power units in all classes of service, representing close to 35 million horse-power. Only about 1,000 of these units, representing about a million and a quarter horsepower had, at that time, been in service less than a year. At the rate of use during the first nine months of 1954 the units then in service were piling up mileages totaling about 75 million a month. Depending upon the road, the type of service and the conditions under which they operated, this rate of use results in wearing out the equivalent of some 75 to 100 units a month to the point where a general overhauling is indicated.

Herein lies the key to the future needs of the railroads for diesel-electric units, the job of rebuilding or modernizing them or the demands for spare parts with which to service and repair them. In spite of the facts that only about a thousand new units were installed during 1954, and that orders for new diesel units for the replacement of steam power retired may, when the figures are all in, hit an eight-year low, this constant wearingout process goes on at a high rate.

Even in 1954 two-and-a-half times as many steam locomotives were retired as were replaced by dieselelectric units. An averaging of the estimates of those who follow the needs of the railroads for locomotives would indicate that the roads still will have to buy from 5,000 to 6,000 units in order to replace the remaining steam power.

The chances are always good, in these days of fast moving developments, either that some major improvement in the diesel-electric or some newer form of power may come into the picture before replacement of all steam power is accomplished. Still, the biggest job that the railroads have to do, as to motive power, as they look into 1955, is to decide on a far-reaching policy with respect to locomotives, so that the twin jobs of establishing intelligent maintenance policies and deciding upon sound motive power replacement policies will retain for them the economies that the diesel-electric has brought.

The past year has brought a new contender into the motive power field—the steam turbine-electric now being tried out on the Norfolk & Western. Motive power people have been prone to "laugh off" the efforts of locomotive builders to combine the advantages of the turbine drive

1954 locomotive orders are tabulated on page 169.

with the possibility of utilizing solid fuel because several experiments into which millions were poured resulted in no more important contribution to the problem of furnishing the railroads with motive power than an

eventual trip to the scrap heap.

No experiment of such magnitude, even though it should end in failure, can help but add to the knowledge so necessary ultimately to bring forth an economically practical motive power unit. That this may be nearer is indicated by a statement by I. N. Mosely, research and test engineer of the Norfolk & Western, before the ASME, in which he said that the Babcock & Wilcox boiler in the steam turbine-electric locomotive which the N&W has been testing for several months has "surpassed all expectations. . . . It is easy to fire, makes sufficient steam for maximum demands, is exceptionally responsive to load changes and can be fired with a clear stack at all steam demands."

Mr. Mosely also stated that in over 19,000 miles of service "no major difficulties have been experienced with the locomotive" and that its "abilities make it so attractive it is imperative that further study be given to improvements of design that are apparent." No one should sell these coal-burning power units short. There are impelling reasons why they may be attractive to the railroad industry. For one, the cost of fuel per thousand gross ton-miles on the N&W experimental locomotive is only about thirteen cents as compared with 1½ to 2 times that much for the diesel-electric. Then, too, the railroads always did make more money hauling bituminous coal around the country than they can ever make hauling liquid fuel, for most of the latter goes in pipe lines and tankers.

Diesel-Electrics Are Here

It can no longer be said that the trend in motive power is toward diesels. They are here, they haul most of the American railroads' freight and passenger traffic and at the present rate of adoption there will be little other motive power by 1960.

The trend toward making them better, faster, more powerful, more dependable and trouble-free, lower in cost of maintenance and operation and and simpler, will continue.

On the basis of present fuel costs the gas-turbine in preferred service can break about even with the diesel, but if it is to become competitive, it must be able to show maintenance costs which are less than those of the diesel. On the other hand the diesel is being adapted to use lower-cost fuels. As this progresses, the situation for the gas-turbine will become tougher. Should it become practical to use really heavy fuel oils, the position of the diesel would apparently become secure for some time to come.

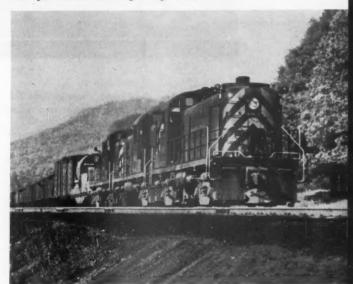
A basic difficulty for the gas-turbine locomotive is that it didn't get started soon enough. But it is in no wise out of the picture. The free-piston compressor is still to be explored and much may be learned from automotive developments now in progress.

Because of the shortcomings of its predecessors, the present steam-turbine-electric locomotive has not received the interest it may deserve. Those who have seen it in operation are inclined to drop their early prejudice.

(Continued on page 182)



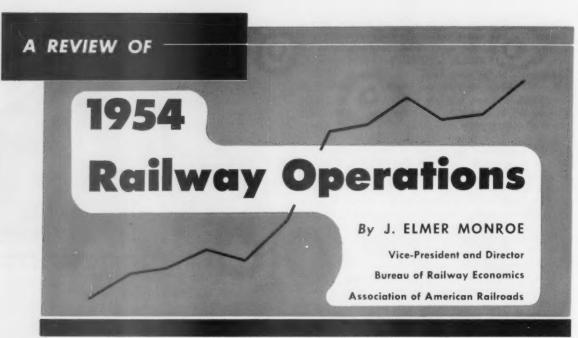
"BIG JAWN," the N&W's experimental steam turbineelectric, in 19,000 miles of service, has made a real bid for a place in the motive power picture.



GENERAL PURPOSE diesel unit of 1,600 hp has filled almost every motive power demand. These are operating on the D&H.



THE DIESEL-ELECTRIC, in nine months of 1954, produced 289 million road locomotive-miles in freight service and another 188 million in passenger service.



CHARTS BY RALPH M. SCHMIDL

ECONOMIC TRENDS in the United States in 1954 followed closely the pattern predicted by most forecasters at the year's beginning.

As anticipated, industrial production declined moderately below the record performance of the preceding year, down by 6 or 7 per cent. Business expenditures for new plant and equipment were off in similar moderate degree. Corporate profits after taxes decreased by approximately 11 per cent in the first three quarters of 1954, but that rate of decrease may have been lessened by improved business conditions in the final quarter of the year. Economic trend lines held remarkably firm throughout 1954, with an encouraging upward tilt developing in the late months as a result of increased activity in the durable goods industries.

Railroads in 1954 experienced much more severe declines in the level of their operations and in their net earnings than did most other industries. Freight carloadings declined 12 per cent below 1953 and were less than for any year since 1938, a year of severe economic depression in the United States. Earnings for the year were down about 25 per cent in the case of net railway operating income and about 30 per cent in the case of net income. Gross capital expenditures for additions and betterments to railway properties were cut by 35 per cent below 1953.

Why the Decline?

Other factors, as well as declining traffic, contributed to the unfavorable financial results of the year's operations. Wage rates averaged 5 cents per hour higher in 1954 than in the preceding year. Even so, the full effect of the settlement in August with the non-operating employees will not be reflected in expense accounts until 1955. Other demands of certain employee organizations were in negotiation at the year's end.

On the legislative front, two bills unfavorable to the railroads were enacted. The first of these authorized United States participation in construction of the St. Lawrence Seaway, which will add part-time facilities of transport in an already overcrowded field. The second enactment increased the amount of railroad employee earnings subject to payroll taxes from \$300 to \$350 per month and increased the benefits payable under the Railroad Retirement and Railroad Unemployment Insurance Acts. Finally, the serious competitive conditions with which the railroads have been faced for a number of years increased in intensity in 1954.

Better Prospects for Next Year

Notwithstanding the loss of approximately \$1.3 billion in operating revenues as compared with the preceding year, the railroads were able through rigid expense control measures to hold the reduction in net earnings after taxes to about \$275 million. While the railroads can ill afford to lose that amount of annual earnings, a loss which brought their rate of return for the year down to about 3 per cent on the net investment in their properties, it was as satisfactory a showing as could be expected under prevailing conditions. It demonstrated the inherent strength and soundness of the industry, operated as it is under severe regulatory and competitive handicaps.

A favorable development for the railroads in 1954 was the encouraging upturn in economic trends toward the year's end. At this time a year ago considerable uncertainty existed as to how far the then-existing down trends would go. Now the question is how far into the future the present upturn may extend. Present indications are that economic conditions in 1955 will improve moderately over 1954, and if so, the railroads will benefit.

There were some indications in 1954 that the rail-

roads' competitive position may be improved. The movement of truck trailers on rail flat cars, often referred to as "piggyback" or "TOFC," gained considerable momentum during the year. While there are many difficult problems still to be worked out before this new development can achieve important stature in the intercity transportation of freight, it has possibilities which are receiving thorough exploration.

Another development was the appointment by the President of a Cabinet Committee on Transport Policy and Organization. Inconsistent government policies and programs concerning transportation have long needed review and re-evaluation. The President's committee is charged with that duty and it is hoped that its report will lead to the establishment of more equitable conditions in the broad transportation field, to the particular benefit of the railroads.

TRAFFIC TRENDS UNFAVORABLE IN 1954

STATISTICAL ENTRIES appearing in this review relate to line-haul railways of Class I and were obtained from reports of the Interstate Commerce Commission or tabulations of the Association of American Railroads. For the most part, the statistics cover operations in the first 9 or 10 months of 1954, with comparable figures for corresponding periods of preceding years. However, in the case of certain key items, such as traffic volumes and net earnings, estimates for the full year 1954 are given.

Table 1 shows comparative statistics of freight and passenger traffic handled in each of the past ten years, 1945 to 1954, the entries for 1954 being approximations for the full year. Charts 1 and 2 depict in graphic form the annual fluctuations in these figures.

Carloadings of revenue freight in the 52 weeks of 1954 totaled 33,862,883 cars, a decrease of 4,438,262 cars under 1953, or 11.6 per cent. Loadings for 1954 were the lowest experienced in the postwar period and, in fact, in any year since 1938, being about 10,600,000 cars, or 24 per cent, under the peak postwar year of 1947.

Seven of the eight commodity groups showed declines in loadings in 1954 below 1953. Greatest relative losses during the year were recorded in coke (down 39 per cent) and in ore (off nearly 33 per cent). The two

Table 1—Comparative Traffic Summary

Year	Revenue carloadings (thousands)	Revenue ton-miles (millions)	Revenue passenger-mile: (millions)
1954	33,863	545,000*	29,400*
1953	38,303	605,813	31,655
1952	37,985	614,754	34,010
1951	40,499	646,620	34,614
1950	38,903	588,578	31,760
1949	35,911	526,500	35,095
1948	42,719	637,917	41,179
1947	44,502	654,728	45,921
1946	41,341	591,982	64,673
1945	41,918	681,001	91,717
1945-1954	1		

Table 2—Carloadings by Commodity Groups

(1954 vs. 1953)

		Increase (I) or Decrease (D compared with 1953			
Commodity group	1954 (000)	h	(000)	Per	cent
Grain	2,548	1	90	1	3.6
Livestock	447	D	5	D	1.0
Forest products	2,078	D	182	D	8.0
Merchandise, LCL	3,196	D	307	D	8.8
Miscellaneous	17,407	D	2,000	D	10.3
Coal	5,650	D	732	D	11.5
Ore	2,115	D	1,031	D	32.8
Coke	422	D	271	D	39.1
Total	33,863	D	4,438	D	11.6

largest commodity classes, miscellaneous (mostly manufactured goods) and coal, which together account for more than two-thirds of total loadings, were off 10 per cent and 11 per cent, respectively. Loadings of forest products and less-carload freight were down between 8 and 9 per cent. Livestock loadings declined about 1 per cent. Grain and grain products was the only commodity group to show an increase, up more than 3 per cent.

Carloadings by commodity groups in 1954, together with absolute and relative changes from 1953, are shown in Table 2.

Ton-Miles. Measured in terms of revenue ton-miles, weight of lading times distance hauled, freight traffic in 1954 approximated 545 billion. This was a decrease of about 60 billion ton-miles under 1953, or 10 per cent. The volume of freight traffic in 1954 thus measured was less than in any postwar year except 1949, when declining business activity and prolonged strikes in the coal and steel industries seriously affected railroad traffic.

Chart 1 shows the monthly trends in ton-miles during the years 1953 and 1954. The ton-miles handled during the several months of 1954 fell below those of 1953 in each month, except possibly in December.

Passenger-Miles. Revenue passenger-miles in 1954 aggregated 29.4 billion, about 7 per cent under 1953. This was the smallest volume of passenger traffic recorded for any year since 1941, when passenger-miles likewise totaled 29.4 billion. The present volume of railroad passenger traffic is less than one-third what it was in the two wartime years 1944 and 1945, and is less than half the level which prevailed in 1946, the first postwar year.

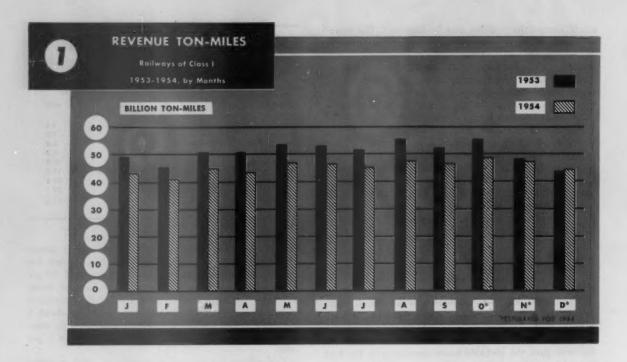
Chart 2 shows the trends by months in passengermiles during the past two years, each month of 1954 being below the corresponding month of 1953.

FINANCIAL RESULTS OF 1954 OPERATIONS

RAILROAD REVENUES, expenses, and net earnings all decreased in 1954. Both actually and relatively, the decrease in revenues was greater than the reduction in expenses, with the result that net earnings declined sharply.

For the year 1954 as a whole, operating revenues

*Partially estimated



approximated \$9.4 billion (down \$1.3 billion), operating expenses were about \$7.4 billion (down \$700 million), net railway operating income stood at about \$835 million (off \$275 million), and net income approximated \$610 million (off \$260 million). The rate of return earned on net property investment averaged a fraction more than 3 per cent for the year.

Excluding income tax deferrals resulting from accelerated amortization of defense projects (about \$180 million in 1954 compared with \$146 million in 1953) the rate of return earned in 1954 was only about 2.45 per cent.

Table 3 shows a condensed income account for the first ten months of 1954 with comparable statistics for the corresponding periods of 1953 and 1952. The final months of 1954 made a better relative showing than did the earlier months of the year.

Operating revenues for the first ten months of 1954 decreased 13.7 per cent below the same period of 1953, while operating expenses were reduced 9.2 per cent. In dollars, the reduction in expenses (a little more than \$600 million) was only about half as much as the decrease in revenues (about \$1,200 million). The operating ratio (the percentage which operating expenses bears to operating revenues) thus rose from 75 per cent in 1953 to 79 per cent in the 1954 period.

Taxes in the ten-month period of 1954 decreased \$346 million, or by 31.8 per cent. Federal income taxes accounted for the greater part of this reduction, declining by \$324 million, or 60.3 per cent, as a result of reduced net earnings. Payroll taxes decreased \$19 million, or 7.7 per cent, reflecting (1) the reduction in railroad employment brought about by lesser traffic, and (2) a partial offset thereto resulting from amendments to the Railroad Retirement Tax Act increasing the amount of monthly taxable employee earnings.

Net railway operating income for the ten-month period

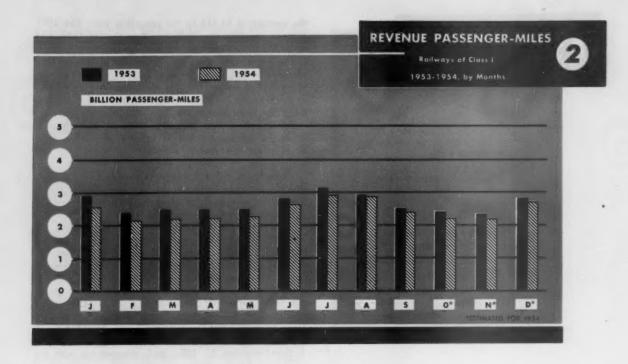
decreased \$281 million, or by 29.5 per cent. This means that the sum of reductions in operating expenses, taxes and net rentals failed by that amount to equal the decrease in operating revenues. Net income after charges for the ten-month period of 1954 was \$267 million, or 36.1 per cent, below the corresponding period of 1953.

For the 12-month period ended October 31, 1954, the rate of return earned on property investment (after depreciation) was 3.10 per cent, compared with 4.19 per cent for the calendar year 1953 and 4.16 per cent for the calendar year 1952.

Table 4 shows the five general operating revenue accounts for the first 10 months of the years 1954, 1953, and 1952. Each of these accounts declined substantially in 1954. Mail revenue in the 1954 period includes about \$8 million of retroactive pay applicable to 1953. That amount accrued from the increase in mail pay rates of 10 per cent authorized by the Interstate Commerce Commission on March 15, 1954, but retroactive to October 1, 1953. Taking that fact into consideration, mail revenue in the first 10 months of 1954 declined by about 6 per cent, reflecting further diversion from the railroads of

Table 3—Condensed Income Account

	1954	1953	1952
	(millions)	(millions)	(millions
Total operating revenues	\$7,780	\$9,017	\$8,739
Total operating expenses	6,159	6,781	6,681
Operating ratio (per cent)	79.16	75.21	76.45
Taxes	740	1,086	1,048
Net railway operating income	671	953	857
Rate earned (per cent)*	3.10	4.45	4.14
Net income after charges	472	739	631



general mail to trucks and of first-class mail to air transport.

The severe declines experienced in freight and passenger traffic volumes resulted in decreases of 14.7 per cent in freight revenue and of 9.2 per cent in passenger revenue. Express privilege payments received by the railroads from the Railway Express Agency dropped 14.2 per cent. All other revenues decreased 12.1 per cent.

Chart 3 shows in graphic form the sources of railroad operating revenues in the first ten months of 1954. Of total operating revenues received from transportation services performed in that period, 83.2 per cent was from the haulage of freight and 8.2 per cent from the transportation of passengers.

Table 5 summarizes railroad operating expenses by general accounts for the 10-month periods of the past three years (see also Chart 4). Application of rigid control measures to operating expenses in 1954 was reflected in decreases in each of the principal expense accounts. Maintenance of way expenses declined 14.2 per cent; maintenance of equipment expenses were off 12.2 per cent; and transportation expenses decreased 6.9 per cent.

Table 6 shows for the ten-year period 1945 to 1954

Table 5—Operating Expenses

Ten Months 1952-1954

nillions)	(millions)	1952 (millions)
\$1,134	\$1,322	\$1,268
1,450	1,652	1,620
3,009	3,233	3,237
566	574	556
\$6,159	\$6,781	\$6,681
	\$1,134 1,450 3,009 566	\$1,134 \$1,322 1,450 1,652 3,009 3,233 566 574

the net railway operating income and rate of return earned on net property investment. Entries for 1954 represent estimates for the full year. Net railway operating income in 1954 fell below that for any other year in the period, except for the postwar transition years of 1946 and 1947, and the recession year of 1949. The net railway operating income earned in 1954 of \$835 million was about \$275 million, or 25 per cent,

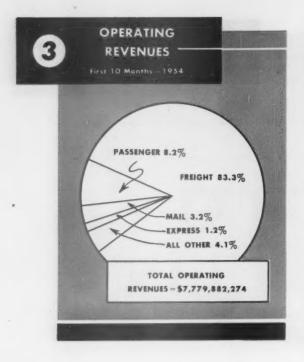
Table 4—Operating Revenues

Ten Months, 1952-1954 1954 1953 (millions) (millions) (millions) \$6,475 \$7,588 \$7,257 Freight Passenger 641 706 757 Mail 250 250 256 94 109 109 Express All other 320 364 360 \$7,780 \$9,017 Total \$8,739

Table 6-Rate of Return

1945-1954

Year	Net railway operating income (millions)	Rate of return on investment after depreciation
1954 (est.)	\$ 835	3.13
1953	1,109	4.19
1952 .	1,078	4.16
1951	943	3.76
1950	1,040	4.28
1949	686	2.88
1948	1,002	4.31
1947	781	3.44
1946	620	2.75
1945	852	3.70



below that of 1953. Rate of return on net property investment was only 3.13 per cent, less than in any other year of the 10-year period except 1946 and 1949.

Chart 5 shows net railway operating income, by months, for 1953 and 1954, while Chart 6 shows the trend in annual rates of return earned on net investment, from 1945 to 1954.

EMPLOYMENT DOWN BUT WAGE RATES ADVANCED

RAILROADS PAID their employees in 1954 approximately \$4,850 million, about 9 per cent less than in 1953. The 1954 payroll was paid to an average of 1,062,000 employees, which was 144,000, or 12 per cent, fewer employees than in 1953. Annual earnings averaged \$4,567 per employee in 1954, or 3.4 per cent more than

Table 7—Employees and Their Compensation

	Average number of	Total	Average annual earnings of		ige straight hourly
Year	employees	(millions)	employees	Rate	Earnings
1954*	1,062,000	\$4,850	\$4,567	\$1.94	\$2.04
1953	1,206,312	5,326	4,415	1.89	1.99
1952a	1,226,663	5,338	4,352	1.84	1.94
1951a	1,276,000	5,336	4,182	1.76	1.84
1950a	1,220,784	4,621	3,785	1.58	1.65
1949	1,191,444	4,419	3,709	1.44	1.51
1948	1,326,906	4,769	3,594	1.31	1.37
1947	1,351,961	4,350	3,218	1.17	1.22
1946	1,358,838	4,170	3,069	1.12	1.16
1945	1,420,266	3,860	2,718	0.93	0.97
1940	1,026,956	1,964	1,913	0.74	0.77
VE-Montad					

a Includes retroactive wage increases paid in subsequent years.

the average of \$4,415 in the preceding year. The 1954 average was 68 per cent higher than that of 1945, and about 2 1/3 times the prewar average in 1940.

The average straight time rate of pay of railroad employees stood at \$1.94 per hour in 1954, or 2.6 per cent above that of the preceding year. It was more than twice as great as the 1945 rate and nearly two and two-thirds times the 1940 prewar rate.

Table 7 shows for the years 1940 and 1945 through 1954, the average number of railroad employees, total payroll, average annual earnings per employee, and average straight time rates and earnings per hour.

Virtually all railroad employee groups filed demands in 1953 for wage increases, rules changes and/or fringe benefits of one kind or another. With one exception, settlement of these demands carried over into 1954.

Settlement with Trainmen. Agreement with the Trainmen was reached near the end of 1953, affecting about 25 per cent of road conductors and the majority of road trainmen, yard conductors and yard brakemen. Under the agreement, the cost-of-living escalation clause, which had then been in effect for more than two years, was cancelled and the accumulated wage increases of 13 cents per hour under that clause were incorporated in basic rates of pay. The agreement also provided for a further increase in wage rates of 5 cents per hour, effective December 16, 1953, and, commencing with the year 1954, for an additional week's paid vacation (three weeks in all) for employees having 15 or more years of service.

Seitlements with Firemen, Conductors and Switchmen. Following the December 1953 settlement with the Trainmen, similar agreements were entered into in 1954 with the Firemen, Conductors and Switchmen.

Engineers' Arbitration. The Engineers declined to accept the pattern settlement agreed to by the other operating employees, insisting that their craft should receive a substantial percentage increase for the purpose of restoring "traditional wage relationships with the firemen."

Under the auspices of the National Mediation Board, an agreement to arbitrate the dispute was signed on March 25, 1954. Arbitration proceedings opened in Chicago on April 26, and continued intermittently until July 30, 1954. The board rendered its award on August 13, 1954, denying entirely the claim of the Engineers for a differential percentage increase, and awarding in lieu thereof the pattern settlement of 5 cents per hour and a third week of vacation after 15 years of service, under the same terms and effective on the same date as had been agreed to by the other operating employees. Also, the cost-of-living escalation clause was cancelled and the then existing allowance of 13 cents per hour was incorporated in basic wage rates.

Conductors' Graduated Rates. At the request of the Conductors, the Mediation Board resumed mediation in Chicago on October 5, 1954, of a demand under which graduated rates of pay for all classes of service would be established based on weight on drivers of locomotives. Mediation was unsuccessful. On November 23, 1954, the President of the United States created an "emergency board" to investigate and make recommendations in response to the Conductors' graduated rates dispute. Hearings were not completed at the year end.

The Diesel Arbitration. Hearings before an Arbi-

tration Board, which began in Chicago on October 27, 1953, were concluded on March 16, 1954. The issue was whether or not the railroads were violating that section of the Diesel Agreements which provides that a fireman (helper) shall be in the cab at all times when a train is in motion in high-speed, streamlined, or mainline through passenger service, and further that if compliance with the foregoing requires the services of an additional man to perform the work customarily done by the fireman (helper), he shall be taken from the ranks of the Firemen.

The Arbitration Board rendered its award on April 13, 1954, in which it found no specific violation of the Firemen's Diesel Agreements. Among other things, the board found that firemen do not have the exclusive right to perform engineroom work. Maintainers, instructors and supervisory officers may perform operational duties incident to their work, but may not be assigned in lieu of a fireman. The carriers have the unrestricted right to determine when an additional employee shall be assigned to a multiple-unit diesel locomotive. If an employee is assigned to perform work customarily performed by firemen, he shall be taken from the seniority ranks of firemen.

Of particular significance is the fact that the award included a definition of the so-called watching-rule trains (in high-speed, streamlined, or main-line through passenger service) under which the definition of such trains is much less restrictive upon management than

the previous interpretation.

Non-operating Employees. Hearings before an emergency board in the Non-operating Employees' Rules and Fringe Benefits Case were concluded on April 3, 1954. The board issued its report on May 15 recommending (a) changes in vacation and holiday pay rules, (b) establishment of a health and welfare plan on a fifty-fifty contributory basis, and (c) acceptance of certain of the carrier rules proposals. Union demands for double-time pay for work performed on holidays were denied, as also was premium pay for Sunday work as such. The board also recommended against liberalization of existing free transportation arrangements.

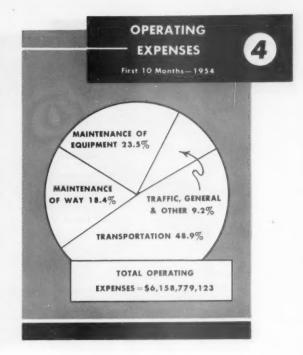
The recommendations of the emergency board were adopted by the parties in an agreement dated August 21, 1954. The agreement provides in general for a third week of paid vacation after 15 years of service; pay on seven national holidays for regularly assigned employees; and adoption in principle of a health and welfare plan. The agreement of August 21, 1954, included revision of certain working rules making them

more favorable to the carrier.

By agreement dated December 3, the cost-of-living escalation clause contained in the agreement of March 1, 1951, was cancelled and the cumulated cost-of-living allowance of 13 cents per hour being paid under that agreement was included in the basic rates.

Demands Served in 1954. In addition to the settlements consummated in 1954 and the unsettled disputes with the Conductors and Switchmen, a series of new demands were served during 1954 by certain of the operating organizations. At the end of the year these proposals were in various stages of negotiations and mediation.

On June 7, 1954, the Trainmen served proposals for wage increases which they claimed were to correct "in-



equities" resulting from the increased length of trains in road service, and "inequities" in the rates of pay of yardmen. In addition, paid holidays were proposed for road and yard men. In yard service it was proposed to increase the differential between conductors and brakemen by \$1.15 per day and to establish shift differentials of 6 cents per hour on the second trick and 9 cents per hour on the third trick.

The Firemen's proposal, which was served on July 1, 1954, calls for the establishment of a minimum guarantee of \$18.00 per day for firemen in road service and an increase of \$2.24 per day in yard service.

On July 15, 1954, the Switchmen also requested an

increase of \$2.24 per day.

The Engineers, having indicated dissatisfaction with the pattern adjustment awarded them by the Arbitration Board, announced that they would serve proposals for changes in pay and working rules on an individual road by road basis and that they proposed to handle such demands to conclusion on the individual roads rather than on a national basis. At the year's end the Engineers had served such demands on a few railroads.

MATERIAL PRICES AND WAGE RATES

TRENDS IN AVERAGE unit prices paid by the rail-roads for fuel, materials and supplies, for various dates from December 1939 through October 1954, are shown in Table 8. As there indicated, such prices in 1954 fluctuated within a narrow range, the all-material index in October being only one-tenth of one percentage point higher than in October 1953.

Between December 1939 and October 1954, the allmaterial price index rose from 52.6 to 123.9, or by 136 per cent. For fuel alone, the increase during the same period was 130 per cent, and for materials other

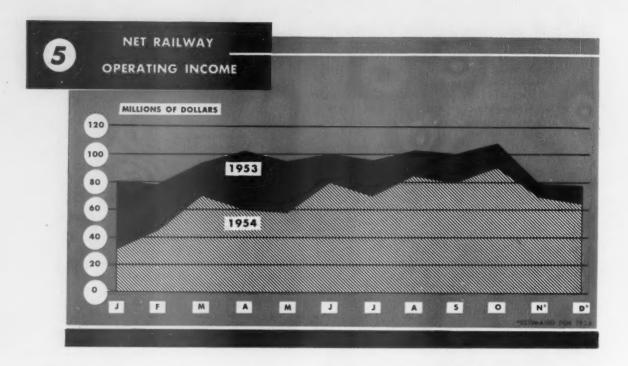


Table 8-Railway Material Price Index

(Mid-year	1947-1	949=100)		
		All materials	Materials and supplies	Fuel
Month		including fuel	(other than fuel)	(coal and oil)
October	1954	123.9	132.8	109.1
July	1954	122.9	131.2	109.1
April	1954	123.5	130.9	111.6
January	1954	124.1	131.4	112.4
October	1953	123.8	131.1	111.8
October	1952	118.5	126.3	105.9
December	1945	71.1	72.1	69.3
December	1939	52.6	55.5	47.5

than fuel the increase for the period was 139 per cent.

The indexes in Table 8 show the trend in spot prices.

A charge-out price index (reflecting original cost of materials consumed during the year) is shown in Table 9, as well as an index for wage rates, years 1939, 1945, and 1948 to 1954.

Table 9-Material Prices and Wage Rates

(Average 1947-1949=100)

Year		Charge-out prices for all materials including fuel	Wage rates (all employees)	Material prices and wage rates combined
1954	(est.)	124.2	148.1	140.9
1953		122.0	144.2	137.5
1952		119.1	140.8	134.3
1951		117.5	134.1	129.1
1950		105.7	120.5	116.1
1949		106.4	110.0	108.9
1948		104.7	100.2	101.6
1945		69.3	71.2	70.6
1939		52.0	56.5	55.2

Data on the length of time materials and supplies are held in stock before being used are the bases for converting spot prices into charge-out prices.

Between 1939 and 1954, the charge-out index for material prices and wages combined (averaged 1947-1949=100) rose from 55.2 to 140.9, or by 155 per cent.

Chart 7 is a graphic representation of the rise since 1939, in the unit costs of labor and materials.

AVERAGE REVENUE PER UNIT OF TRAFFIC

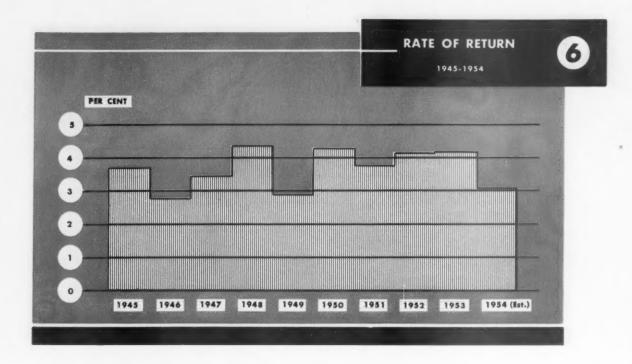
DURING THE FIRST nine months of 1954 revenue per ton-mile averaged 1.431 cents, while revenue per passenger-mile averaged 2.614 cents. Table 10 shows these averages for each year from 1945 to 1953, and for the first nine months of 1954 (see also Chart 11).

Revenue per ton-mile in the first nine months of 1954 declined about 3 per cent below the average for the year

Table 10—Revenue Per Unit of Traffic

1945-1954

	Per	Per
	ton-mile	passenger-mile
Year	(cents)	(cents)
1954 (9 Mos.)	1.431	2.614
1953	1.478	2.658
1952	1.430	2.664
1951	1.336	2.601
1950	1.329	2.561
1949	1.339	2.452
1948	1.251	2.341
1947	1.076	2.097
1946	0.978	1.947
1945	0.959	1.871



1953, reflecting the composite effect of changes in traffic consist, in length of haul, and in rates.

Although there were some increases in commutation fares, revenue per passenger-mile for the 1954 period was slightly lower (less than 2 per cent) than it was in the year 1953. A sharper decline in parlor and sleeping car traffic than in the lower-fare coach traffic was largely responsible for this situation.

CAPITAL EXPENDITURES AND PURCHASES

TABLE 11 SHOWS gross capital expenditures made by Class I railways for additions and betterments to their properties, as well as the amounts expended for purchases of fuel, materials and supplies, years 1945 to 1954 (see also Chart 12). Entries for 1954 are estimated.

Capital expenditures in 1954 approximated \$810

Table 11—Capital Expenditures and Purchases

Year	Gross capital expenditures (thousands)	Purchases of fuel materials and supplies (thousands)
1954 (est.) 1953	\$ 810,000 1,259,794	\$1,650,000 1,920,481
1952	1,340,912	1,817,750
1951	1,413,995	2,175,859
1950	1,065,842	1,739,908
1949	1,312,200	1,641,406
1948	1,273,484	2,183,331
1947	864,689	1,909,209
1946	561,957	1,570,555
1945	562,980	1,572,404

million, a reduction of about 35 per cent under the amount expended in 1953. This was a considerably smaller outlay for railroad capital improvements than in any of the preceding six years, when such expenditures exceeded one billion dollars in each year and exceeded one and one-quarter billion dollars in five of the six years.

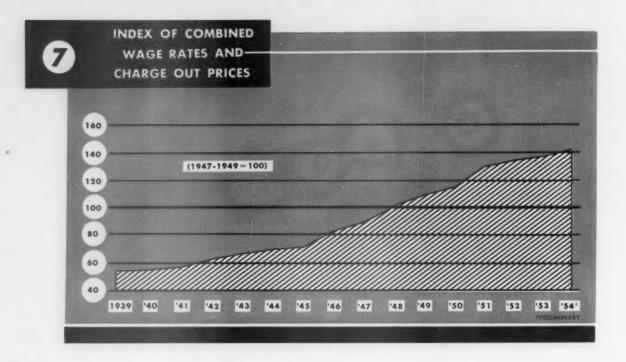
During the nine postwar years, 1946 to 1954, railroad capital expenditures exceeded \$9.9 billion, an average of \$1.1 billion per year. Of this total, \$6.9 billion, or nearly 70 per cent, was spent for equipment, and \$3.0 billion was used for improvements to roadway and structures.

Of the 1954 expenditures, about 62 per cent was allocated to equipment and the remaining 38 per cent was spent on roadway and structures. The fact that the railroads' dieselization program has passed its peak had considerable to do with the decline in 1954 in the proportion of equipment expenditures.

Purchases of fuel, materials and supplies declined sharply in 1954 to a total of about \$1,650 million. This was a decrease of \$270 million, or 14 per cent under 1953. The reduction reflects both the declining use of materials by the railroads in 1954 and reductions made during the year in the stocks of materials on hand.

CAR AND MOTIVE POWER TRENDS

THE INFLUENCE of declining traffic and reduced earnings in 1954 on locomotive and freight car ownership, on the number of new units installed, and on the unfilled orders at the year's end, is shown in Table 12. The drop in carloadings to the lowest level in 16 years largely removed the incentive to increase the freight car fleet at this time, and the shrinkage in net earnings



made it undesirable for the railroads to assume additional large obligations financing the purchase of new equipment units. Furthermore, deferral of taxes through accelerated amortization on new equipment became less attractive to railroads anticipating below normal taxable income in 1954.

Freight Cars. The freight car ownership expansion program inaugurated at the start of the Korean War in 1950 was temporarily shelved in 1954 as railroads reexamined their equipment requirements in the light of a lower level of economic activity and a further reduction in their share of intercity freight traffic. Only about 28,000 new freight cars were placed in service in 1954 by Class I railroads, the smallest annual total since 1939. The backlog of unfilled orders for new freight cars dropped steadily through most of the year.

The subnormal installation of new freight cars in 1954, coupled with a higher rate of retirements than had been experienced in three prior years, resulted in a loss of about 40,000 units in the total freight car ownership of the Class I railroads.

Due to the lesser demand for cars and the necessity for the railroads to trim their maintenance expenditures, the serviceable freight car fleet dropped faster and farther than did ownership. Freight cars undergoing or awaiting repairs rose steadily from 87,637 cars on January 1, equivalent to 4.9 per cent of ownership, to 125,523 cars, or 7.2 per cent of ownership, on October 1. The percentage dropped to 6.9 on December 1, largely due to retirement of a large number of bad order cars. The combined effect of decreased ownership and increased bad orders was a reduction during the year of approximately 75,000 in the number of serviceable freight cars.

Passenger Cars. Ownership of passenger train cars in 1954 continued the decline which began in 1946 and has continued in each postwar year, resulting in an

overall loss of about 8,000 cars in the nine-year period. Railroad ownership of passenger train cars of steel or steel underframe construction on July 1, 1954, totaled 34,552, a decrease of 532 cars under the January 1 ownership and 718 less than the number owned on July

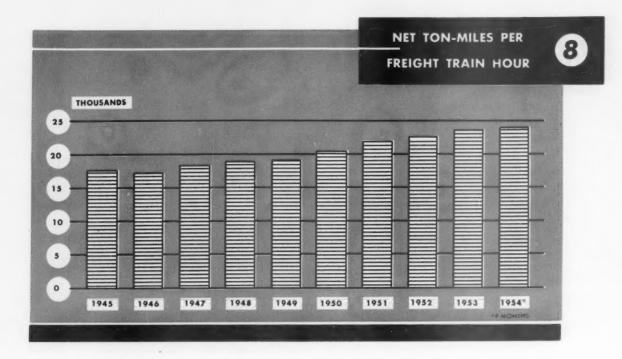
Table 12—Equipment Ownership and Installations

Class I Railroa	ds, 1948-1954		
	Ownership	Installed	On order
	at end	during	at end
Year	of year	year	of year
Steam locomotiv	ves		
1954 (Dec. 1)	8,828	*******	*******
1953	11,696	15	*******
1952	15,903	19	15
1951	21,200	18	19
1950	25,265	12	16
1949	28,809	57	13
1948	32,613	86	72
Diesel and elec	tric Locomotives ^a		
1954 (Dec. 1)b	17,595	807	264
1953	16,978	1,836	395
1952	15,322	2,396	817
1951	13,017	2,540 .	1,720
1950	10,531	2,384	1,628
1949	8,169	1,808	885
1948	6,368	1,401	1,561
Freight-carrying	cars		
1954 (Dec. 1)	1,738,505	26,706	13,639
1953	1,776,017	67,548	27,678
1952	1,756,700	63,748	67,138
1951	1,751,731	84,218	104,831
1950	1,717,659	39,872	109,174
1949	1,749,736	78,876	12,861
1948	1,754,840	96,204	84,161

^aComplete locomotives as operated.

blackludes 25 gas turbine locomotives owned and 15 installed.

Excludes railroad controlled private refrigerator car lines.



1, 1953. An additional 5,539 cars were operated by the Pullman Company, a decrease of 132 cars in the first six months of 1954 and a reduction of 688 cars below mid-year 1953.

There were 193 new passenger train cars installed in the first half of 1954, and 331 new cars were on order at the end of that period. In the corresponding period of 1953, 112 new cars were installed and 566 new cars remained on order.

Locomotives. As shown by Table 12, locomotive ownership, installations and new orders all declined in 1954, continuing trends of other recent years. Dieselization of motive power continued, but at a sharply reduced rate. Some significance may be associated with the fact that 1954 was the first year on record, perhaps the first in railroad history, when not one new steam locomotive was reported installed.

In the first eleven months of 1954, 807 new locomotives were placed in service, including 792 diesels (1,008 units) and 15 gas turbine locomotives. The average of 73 new locomotives installed per month in 1954 compares with an average of 153 per month in 1953 and more than 200 per month in the three-year period 1950-1952 when dieselization programs were at their peak.

Table 13 shows the respective percentage of freight, passenger and yard services performed by the principal kinds of motive power in 1945 and in each year from 1949 to 1954. Whereas diesels performed less than 10 per cent of road services and only one-fourth of yard service in the last year of World War II, diesel locomotives in 1954 accounted for 84 per cent of freight gross ton-miles, 86 per cent of passenger-train car-miles, and 89 per cent of locomotive-hours in yard switching service.

With electric locomotives maintaining about the same relative position in each year, steam power has shown a decline corresponding to the growth of diesel power. At the close of 1954 steam locomotives still accounted for about one-third of the locomotive ownership of Class I railroads, but relatively few engines of this type were actually in service and most "steam railroads" were using nothing but diesels. In fact, over 90 per cent of the freight gross ton-miles hauled by steam locomotives in the first ten months of 1954 was accounted for by only 15 railroads, and 69 per cent was made on just six railroads.

Table 13—Locomotive Utilization

PERCENTAGE OF FREIGHT, PASSENGER AND YARD SERVICES PERFORMED, BY TYPE OF POWER

			Steam	Diesel-	Electric
Year			locomotives	electric	and other
		Freight	Service (Gross	ton-miles, cars and con	fents)
1954	(10	mos.)	13.92%	83.76%	2.32%
1953			23.42	74.64	1.94
1952			32.61	65.52	1.87
1951			45.51	52.65	1.84
1950			53.91	44,13	1.96
1949			63.05	34.89	2.06
1945			91.13	6.98	1.89
		Pas	senger Service	(Passenger-train car-miles	:)
1954	(10	mos.)	8.03%	85.75%	6.22%
1953			13.99	79.54	6.47
1952			21.83	71.53	6.64
1951			30.89	62.73	6.38
1950			36.31	57.30	6.39
1949			44.25	49.29	6.46
1945			84.45	9.59	5.96
			Yard Service	(Locomotive-hours)	
1954	(10	mos.)	9.64%	89.48%	0.88%
1953			15.71	83.14	1.15
1952			22.01	76.72	1.27
1951			30.97	67.79	1.24
1950			38.20	60.45	1.35
1949		1 11	47.83	50.77	1.40
1945			73.11	25.55	1.34

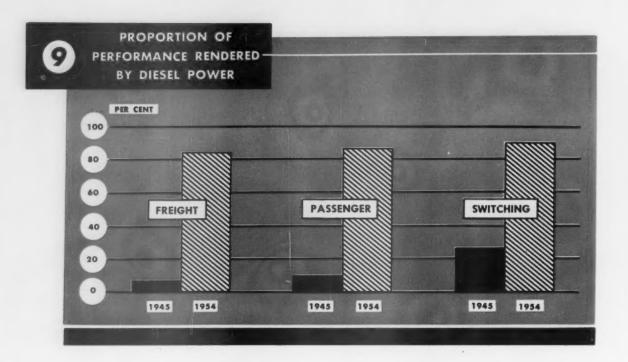


Table 14—Ton-miles per Freight Train-hour

	Gross	Net
Year	ton-miles	ton-miles
1954 (10 mos.)	53,844	23,869
1953	51,750	23,443
1952	49,113	22,565
1951	46,407	21,760
1950	44,352	20,343
1949	42,346	19,024
1948	39,903	18,778
1947	38,462	18,126
1946	37,057	17,173
1945	36,954	17,482

Dieselization of railroad motive power between 1945 and 1954 is graphically portrayed in Chart 9.

PROGRESS IN EFFICIENCY AND ECONOMY

THE FOUR tables next in series compare certain significant railroad performance averages for the first ten months of 1954 with annual averages for the calendar years 1945 to 1953.

One of the more significant performance averages is ton-miles (gross or net) per freight train-hour. That average combines both load and speed factors. The unit output per hour of freight train operation is computed on two bases: (1) gross ton-miles of cars and contents per freight train-hour, and (2) net ton-miles (lading only) per freight train-hour. Both averages appear in Table 14.

Averages for the first ten months of 1954 indicate that new records for both factors will be set for the year. If that proves to be the case, it will mark the eighth consecutive year in which a new high performance record was established in that respect.

Chart 8 portrays the increase in net ton-miles per freight train-hour from 1945 to 1954.

Table 15 shows daily mileage averages for locomotives and freight cars for each of the calendar years 1945 to 1953, and for the first ten months of 1954.

Active freight locomotives (serviceable excluding stored serviceable) in the 1954 period averaged 136.5 miles per day, 3.8 miles more than in 1953, the previous record year. Active passenger locomotives in the same period averaged 303.7 miles per day, surpassing the 1953 record performance by 15.8 miles. The progress achieved in these two averages in recent years is further indication of the importance of dieselization to the rail industry.

Serviceable freight cars (including serviceable surplus cars) averaged 43.5 miles per day in the first ten months of 1954, a decline of 3.0 miles under the 1953 average.

Table 15—Daily Mileage, Locomotives and Cars

	Active freight	Active passenger	Serviceable freight
Year	locomotives	locomotives	cars
1954 (10 mos.)	136.5	303.7	43.5
1953	132.7	287.9	46.5
1952	126.8	266.1	46.2
1951	122.5	247.6	47.2
1950	119.3	237.2	46.5
1949	112.5	228.5	42.9
1948	116.8	220.9	47.2
1947	120.3	219.0	48.8
1946	115.9	221.8	45.2
1945	118.4	226.9	49.3

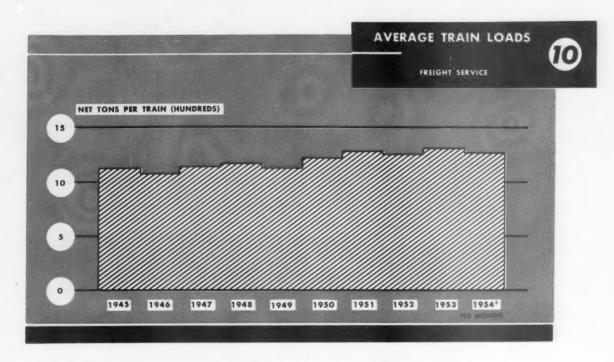


Table 16—Average Train Speed (mph)

	Freight	Passenger
Year	trains	trains
1954 (10 mos.)	18.7	39.5
1953	18.2	39.1
1952	17.6	38.3
1951	17.0	37.7
1950	16.8	37.4
1949	16.9	37.0
1948	16.2	36.7
1947	16.0	36.1
1946	16.0	35.5
1945	15.7	34.7

The increase in idle serviceable cars during the period accounted for the decline in average utilization per serviceable car.

Train speeds (miles per hour between terminals) showed increases in both freight and passenger services during the first ten months of 1954. These averages appear in Table 16 for the calendar years 1945 to 1953 and for the first ten months of 1954.

Average freight train speed increased five-tenths of a mile over 1953, setting a new record of 18.7 miles per hour. Passenger train speed was four-tenths of a mile above the 1953 level, setting a record of 39.5 miles per hour.

Table 17 shows average load per train and per car in both freight and passenger services. (See also Chart 10 covering freight data.) Figures for the calendar years 1945 to 1953 together with those for the first 10 months of 1954 are shown.

Each of these averages registered declines in the 1954 period, reflecting the depressed traffic volumes prevailing until the close of the year.

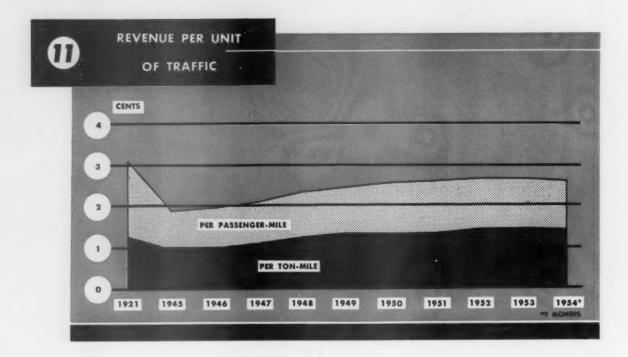
AN OUTSTANDING SAFETY RECORD

THE OVERALL safety performance of railroads in 1954 was again outstanding, and 1953 results were bettered in nearly every category.

The passenger safety record during the first ten months of 1954 was one of the best in history. During that period only four passengers lost their lives in train accidents (collisions, derailments, etc.), compared with 20 such fatalities in the corresponding period of 1953. There were 12 passenger fatalities in train-service accidents in the first ten months of 1954 compared with 19 fatalities in the first ten months of 1953. Train-service accidents are usually the result of some form of carelessness on the part of passengers themselves, such as attempting to board or alight from moving trains. The fatality rate of 0.07 per hundred million passenger-miles for all

Table 17—Average Train and Car Loads

	Freight	Service	Passenge	er Service
	Net tons	Net tons	Passengers	Passengers
l'ear	per train	per car	per train	per car
1954	*1,288	*31.4	b93.2	b17.5
1953	1,301	32.1	94.8	17.7
1952	1,296	32.5	98.4	18.1
1951	1,300	33.0	97.2	18.1
1950	1,224	31.7	88.5	17.0
1949	1,138	31.4	92.0	18.0
1948	1,176	32.9	100.8	19.4
1947	1,146	32.6	110.2	21.1
1946	1,086	31.3	143.7	24.7
945	1,129	32.2	189.7	30.4



passenger fatalities during the first ten months of 1954 ranks with the best such rates attained in prior years.

Employee fatalities during the first ten months of 1954 were lower by far than in any comparable period in the past. There were 171 employee fatalities for that period, compared with 252 for the same period of the preceding year. If this performance is maintained when reports are in for the balance of the year, not only will last year's all-time record of 0.11 fatalities per million man-hours be lowered, but for the first time in history the rate will fall below 0.10. Preliminary figures indicate a rate of 0.08 for the first ten months of the year. This is a real achievement when it is considered that the rate of 0.20 was broken for the first time in 1946, a scant 9 years ago.

Employee injuries in the first ten months of 1954 were also substantially below the corresponding period of 1953.

Highway grade crossing accidents trended downward in the first ten months of 1954 when there were 14.0 per cent fewer fatalities and 8.9 per cent fewer nonfatal injuries than in the same months of last year. This record is most gratifying in view of the steady increase in the number of motor vehicles on the highways.

HOW LEGISLATION AFFECTED THE RAILROADS

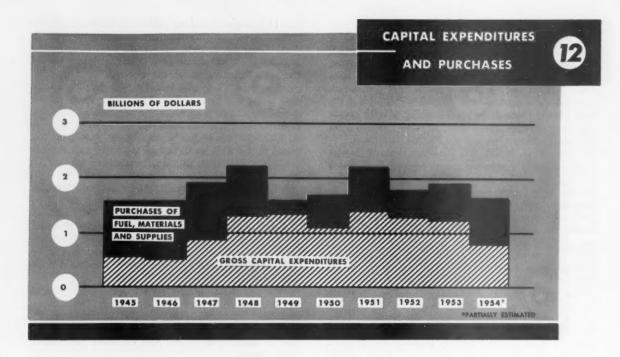
EXCEPT FOR SOME remedial tax legislation, enactments of the second session of the 83rd Congress pertaining to transportation were limited principally to certain measures unfavorable to the railroads.

Ending long controversy with respect to one phase of the St. Lawrence Waterway, the President on May 13 signed into law S.2150, providing for United States participation in the construction of navigation facilities in the International Rapids section of the St. Lawrence river. Since this act authorizes only part of the entire proposed project, there will undoubtedly be further issues raised with respect to the size of locks to be constructed by the United States and as to improvements of connecting channels and harbors in the Great Lakes.

Over the objections of the railroads, Public Law 746 effectuated important changes in the railroad retirement and unemployment insurance systems which it is estimated will cost the carriers approximately \$58 million annually. Also, the so-called "dual benefit bill" was enacted as Public Law 398, repealing Section 3b(3) of the Railroad Retirement Act which had fixed maximum annuities payable for combined Social Security and railroad service performed prior to the effective date of the Railroad Retirement Act. Other bills proposing still greater additions to employee benefits under the railroad retirement and unemployment insurance systems failed to be reported out of committee and died with the adjournment of the 83rd Congress.

Tax measures enacted by the 83rd Congress affected the railroads in important respects. The comprehensive revisions contained in the Internal Revenue Code of 1954 included a number of relief measures which had long been sought by the railroads, with respect to such matters as depreciation, the pyramiding of lessor income taxes, elimination of the 2 per cent penalty for filing consolidated returns, and full recognition of the 85 per cent credit on intercorporate dividends in loss years. The Excise Tax Reduction Act of 1954 lowered the excise tax on transportation of persons from 15 to 10 per cent but afforded no relief at all from the 3 per cent tax on amounts paid for the transportation of property.

The Senate and House passed the so-called "government reparations" bill designed to establish the finality of contracts between the government and common carriers subject to the Interstate Commerce Act, but the President withheld his approval of this legislation, for



reasons stated in a memorandum of disapproval dated September 2, 1954.

Various other transportation matters came before the second session of the 83rd Congress but were not acted upon, including the long-considered "time-lag" bill which the railroads had favored. Certain other bills which the railroads had opposed also failed of enactment such as the "operating rules" and "brake" bills, which would have extended the regulatory authority of the Interstate Commerce Commission with respect to these managerial responsibilities, and the "trip-lease" bill which would have deprived the Interstate Commerce Commission of necessary authority to regulate the duration and terms of truck leases. Congress also failed to act on bills to repeal Public Law 199 which limits the sizes and weights of parcel post and thus imposes some restraint upon government intrusion into the freight business in competition with private industry.

JUDICIAL AND ADMINISTRATIVE PROCEEDINGS

ONLY SOME of the outstanding developments in judicial and administrative proceedings affecting the railroads in 1954 can be noted in this brief survey.

Most important for their implications have been the "experiments" which the Post Office Department initiated in October 1953, and has since enlarged, for the movement of regular first-class mail by air carriers on a "space available" basis at special low rates. The railroads are opposing these ventures in the courts and before the Civil Aeronautics Board as unauthorized by law and because they are diverting to the domestic air carriers selected volumes of mail traffic while the railroads are obligated to continue to provide the department with what amounts to a stand-by type of mail service.

In the Seatrain Antitrust Case (Seatrain Lines vs.

Pennsylvania Railroad, et al) Seatrain was permitted to file an amended complaint limited to subsidiary allegations under an order of the Third Circuit Court of Appeals dated September 30, 1953, which had sustained the district court's dismissal of Seatrain's principal allegation to the effect that the railroads had unlawfully conspired to boycott Seatrain's services. While hearings were held June 21 on an amended complaint by Seatrain against six railroads, the district court has not yet ruled upon it.

In another antitrust proceeding, Riss & Co., an interstate motor carrier with principal offices in Kansas City, Mo., filed a complaint on September 22, 1954, in the U. S. District Court for the District of Columbia against 85 railroads, several railroad associations, and a public relations firm, charging that the defendants have injured the plaintiff by activities in violation of the antitrust laws. The complaint alleges that the plaintiff has sustained damages of \$30 million, and seeks treble damages. In addition, the complaint seeks injunctive relief against the alleged activities of the defendants.

The general burden of the complaint is that the defendants have combined and conspired to oppose, harass, and impede the plaintiff's operations as an interstate motor carrier by the solicitation of state and local legislative, regulatory and administrative action unfavorable to Riss, have combined and conspired to abuse their right to intervene in proceedings before the Interstate Commerce Commission to prolong unduly proceedings involving Riss, and have combined and conspired to carry on a campaign of unfair competition against the plaintiff, through the dissemination of false propaganda about Riss.

On December 15, 1954, in answers filed to plaintiff's complaint, 23 western railroads asserted counterclaims for damage of \$100 million, charging illegal and unauthorized operations by Riss in the hauling of explosives and other commodities between certain points in

the West during the past 12 years. These railroads contend that they were deprived of revenue believed to exceed \$100 million which would have accrued to them if Riss had not engaged in what they term illegal operations.

Reorganizations of two Class I railroads were completed in 1954 and bankruptcy proceedings were terminated for these carriers—the Wisconsin Central and the Long Island. Proceedings are continuing in other important reorganization cases, such as those involving the Missouri Pacific system and the Florida East Coast.

In Docket No. 31358, ICC Examiner Howard Hosmer recommended in a proposed report released December 8 that the commission enter a declaratory order finding that the daily freight car rental rates of \$1.75 fixed in November 1949 and \$2.00 established in May 1952 were reasonable when in effect, and that a reasonable rate for present use would be \$2.10, in contrast with the daily rate of \$2.40 which has been in effect since August 1, 1953. The examiner's report was filed after extensive hearings on a complaint instituted on September 21, 1953, by 19 of the major Class I railroads, resulting from a disagreement between those railroads and certain others concerning the reasonableness of per diem charges.

In a report dated July 30, 1954, the Interstate Commerce Commission made important rulings on the legal questions raised by the railroads' trailer-on-flat car service, frequently referred to as "piggyback." Under Docket No. 31375, Movement of Highway Trailers by Rail, the commission gave consideration to twelve specific questions formulated by it as a result of the September 30, 1953, petition for declaratory order filed by the New York, New Haven & Hartford. Of primary importance was the question of whether trailer-on-flat car service constituted carriage by railroad, and therefore subject to Part I of the Interstate Commerce Act, or whether the operation was subject to Part II of the act, governing motor vehicle transport. The commission resolved this question in favor of the railroads, stating further that the railroads are authorized to perform trailer-on-flat-car service without motor carrier certificates.

TRANSPORTATION STUDIES AND REPORTS

IN 1954 President Eisenhower created two special committees to consider transportation matters.

Cabinet Committee on Transport Policy and Organization. Expressing concern that policies and programs of the government affecting the various forms of transportation should be "best designed" to help the transportation industry in its several branches to "maintain itself at maximum effectiveness," the President on July 12 established a Cabinet Committee on Transport Policy and Organization. The committee was directed to make a comprehensive up-to-date review of overall transportation policies and problems as an aid in assuring the "overall consistency" of government policies and programs concerning particular branches of the transportation industry.

Sinclair Weeks, secretary of commerce, was designated as chairman of the Cabinet Committee. The secretary of defense and the director of the Office of Defense Mobilization were designated to serve as members, with the secretary of the treasury, the postmaster general, the secre-

tary of agriculture, and the director of the Bureau of the Budget participating on an *ad hoc* basis.

On September 2, 1954, the secretary of commerce announced the appointment of a Working Group for the Cabinet Committee under the direction of Arthur W. Page, of New York, who stated that while public hearings would not be held he would be happy to receive written statements from interested segments of the transportation industry. Accordingly, the railroad industry through the Association of American Railroads presented to the Working Group in September and October a series of statements, and a final summary, on subjects deemed appropriate.

It is understood that the Cabinet Committee had submitted its recommendations to the President, but at the year's end contents of the report had not been released.

Advisory Committee on a National Highway Program. On August 30 announcement was made from the White House of the appointment of General Lucius D. Clay as chairman of an Advisory Committee on a National Highway Program. On September 7 the following additional members of the committee were appointed: Stephen D. Bechtel, president, Bechtel Corporation; David Beck, president, International Brotherhood of Teamsters; S. Sloan Colt, president, Bankers Trust Company; and William A. Roberts, president, Allis Chalmers Manufacturing Company.

The Advisory Committee was appointed by the President to prepare "basic recommendations" for carrying out his concept of an improved national highway system as outlined by Vice-President Nixon in an address before the Governors Conference at Lake George, N. Y., on July 12. This address had suggested a need for increasing road construction expenditures by \$5 billion annually through the next ten years, over and above all current, normal expenditures. Such a \$50 billion program, the President advised, should be financed on the basis of "self-liquidation of each project," where possible.

In considering various approaches to these problems, the President's Advisory Committee was to work in cooperation with the Committee of the Governors Conference, headed by Governor Walter Kohler of Wisconsin, which had been appointed in July to formulate proposals in connection with the President's highway program. The President requested the Advisory Committee to submit its report and recommendations before January 5, 1955, when the next Congress was to convene.

At public hearings before the committee on October 7 and 8 more than a score of organizations responded to invitations to submit suggestions on the proposed highway program. At those hearings, the railroads emphasized as a fundamental principle of sound financing that "highways should be self-supporting on the basis of user charges, with equitable and adequate payments required from those who use the highways as freightways, including an allowance equivalent to ad valorem taxes." Stressing the responsibility of the states for highway developments, the statement by the railroads concluded:

The best course is for the states to take more vigorous action to improve their systems of highway user charges, requiring adequate weight-distance taxes on heavy commercial trucks, both domestic and out-of-state, and to take effective measures to protect highway facilities against abuse and destruction by heavy freight vehicles. The states should not be relieved of this necessity by undue federal grants-in-aid.

THE COMPETITIVE SITUATION IN 1954

COMPETITIVE CONDITIONS in transportation, particularly those attributable to public policies, continued in 1954 to work strongly against the railroads. Indications are that the railroad share of total intercity traffic again declined in 1954, prolonging the downward trend which has been in evidence since World War II.

The influence of the government on transportation extends over a broad range of policies and actions in the fields of regulation, promotion, use and taxation. In each of those areas existing policies and practices are contributing to erosion of railroad traffic, rate structures and earnings. Whereas the railroads are privately owned, self-supporting and tax-paying businesses subject to rigid regulation of their own operations, their principal competition is from means of transportation which are regulated only to a limited extent or not at all, and are heavily subsidized through the provision of basic facilities at public expense without the requirement of adequate user charges from those who are advantaged.

The railroads also have been affected adversely by actions of the government as a user of transportation service. Beginning in the latter part of 1953 and continuing throughout 1954, the Post Office diverted from the railroads to domestic scheduled air lines on a "space available" basis increasing volumes of first-class mail in programs described as "experimental." The diversion of regular mail from the railroads to trucks, on a contract basis, was further extended in 1954. The Department of Defense continued to make extensive use of irregular and contract operators by air for the movements of military personnel.

In the tax field, the discriminatory wartime excises on transportation of persons and freight by for-hire carriers remain in effect, penalizing such carriers in their competition with private means of transportation. In these various ways the government is imposing serious handicaps upon common carrier transportation by railroad.

It may be hoped that the comprehensive review of transportation policies by the President's Cabinet Committee will focus attention upon these unbalanced conditions of competition in transportation and that its recommendations will lead to needed corrective actions. There are indications of growing awareness that remedies are required. The present chairman of the Interstate Commerce Commission in an address on November 18, noting that there has been a complete change in the transportation industry within the past 30 years, said:

But in the face of this change in transportation-from a monopoly to a competitive system-I find that regulation has not changed. Today regulation is practically the same as it was 30 years ago. But I say to you, regulation must change. The old rules are as much out of date as the horse

In the same vein the undersecretary of commerce for transportation, Robert B. Murray, Jr., recently stated:

Some of our federal transportation policies-particularly as they affect the railroads-stem basically from the transportation situation as it existed many years ago. They stem from that period when the railroads had virtually a monopoly position. We find regulatory and promotional policies designed to foster and protect some of the other media in the transportation fraternity. We even find regulation intended to protect the railroads from themselves

In the meantime, of course, some of the other forms

of transportation have become potent factors in their own right. They have brought highly competitive conditions into the transportation industry. However, the railroads, still operating under earlier regulatory concepts, are not always in a position to enter fully into this competitive race.

AN APPRAISAL OF THE OUTLOOK FOR 1955

THE YEAR 1954 drew to a close with indications that the upturn in business activity which got under way in the fourth quarter may continue into the first half of 1955 and perhaps beyond. There are increasing manifestations that strong growth factors may be expected to bring continuing gains to the nation's economy for years to come, although the rate of such growth seems likely to be moderate and will, as in past periods, be subject to interruptions from time to time.

A notable feature of present expectations of moderately higher business levels in 1955 over 1954 is the uniformity with which improvements are anticipated for various key segments of the economy, such as steel output, construction activity, coal production, and the manufacture of automobiles. In such important segments of the economy, and with little or no expression of contrary views on the pessimistic side, it has been estimated that gains may range from 5 to 10 per cent over 1954. No upset is presently in sight for any major line of activity. With prospects of continuing large governmental outlays for defense and other purposes, it would appear at this time to be a conservative estimate that total industrial output in 1955 may be about 5 per cent greater than in the year just past, but still slightly under the high level attained in 1953.

While it may reasonably be expected that railroad traffic would respond to such higher levels of general economic activity, in other important respects the outlook for the railroads is still somewhat clouded. It has been noted that rail traffic and earnings in 1954 fell off much more sharply from 1953 than did the economy and output as a whole. This is partly attributable to severe declines in industries which furnish large volumes of traffic to the railroads, such as coal and steel and its products and components. Their continuing revival to higher levels would doubtless contribute to increased rail tonnages.

But the railroads continue to operate under serious handicaps in their efforts to compete with favored and protected means of transportation. With respect to these adverse conditions no sudden reversal is in sight. Prospects for improved earnings of the railroads also depend upon the outcome of proposals for further wage increases and other employee benefits which previously have so fully absorbed rising gross revenues and the results of

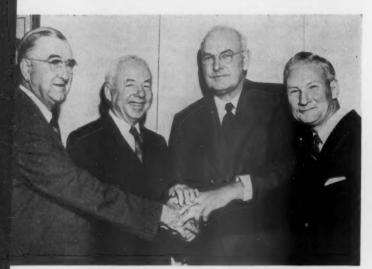
increasing efficiency of operations.

Expenditures of the railroads for capital improvements in 1954 fell to approximately \$810 million, or about 35 per cent below the preceding year. Such capital expenditures are a continuing necessity if a strong and improving railroad system is to be maintained for the nation's commerce and defense. Since the railroads must rely chiefly upon internal sources of funds with which to finance such improvements, higher levels of traffic and earnings are needed to attain these desirable results, to the benefit of the shipping and traveling public and the national security.



1954's PROXY BATTLES put the railroad industry in the limelight. Yet public comprehension of the industry's basic troubles remained too slight to elicit help from Congress.

Outstanding Headline Events of '54



MANAGEMENT UNITY WAS RE-ACHIEVED (above)—Ever since 1946, the Chesapeake & Ohio under Robert R. Young (2nd left) had been withdrawn from non-operating functions of the AAR. But following the November 19 member road meeting, he joined with Norman C. Naylor (left) chairman of the Railway Business Association, AAR President W. T. Faricy and C&O President Walter J. Tuohy (right) in announcing that "differences" had been settled, that the road resumed its full-fledged membership, and that the New York Central (of which Mr. Young is now chairman) would remain steadfastly a member.

By ARTHUR M. COX, JR.

Western News Editor



SUPPORT CAME FROM SUPPLIERS.—"... To increase public understanding of the railroad industry," the manufacturers of railroad equipment joined together in the Committee of Railroad Suppliers. Their purpose: An advertising campaign showing railroad management "in a realistic light" and analyzing "railroad progress and problems." B. F. Fairless (center), chairman of the United States Steel Corporation (seen here with Alfred E. Perlman and Perry M. Shoemaker, president of the New York Central and Delaware, Lackawanna & Western, respectively) led off the unusual campaign.



SOME ATTITUDES BEGAN TO CHANGE.—The passenger deficit problem was found "staggering," and "a serious threat to the economic stability of the railroads," by the association of state public utilities commissioners. The group minced no words in placing at least part of the blame on its own members for "failure to allow changes in operations which have been shown to be hopelessly incapable of returning the cost of service on any basis." Elsewhere, Interstate Commerce Commissioner Richard F. Mitchell told shippers that the "rules should be the same for all" in transport, and evidence developed of keener ICC appreciation of the situation.

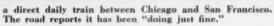


AND A NEW MEDIUM BEGAN TO GROW.—Piggyback, now called everything from "Toffece" to "Tructrain" service, is a regular operation on some 23 different roads. Others are planning it. Most handle rail-billed truckload and lel freight at rates competitive with motor common carriers. High-volume, fast train haulage of motor carriers' trailers, as advocated by E. F. Ryan of the Rail-Trailer Company, will get its first test by the Pennsylvania this year.

AND OTHER IMPORTANT RAILROAD HAPPENINGS . . .



AN IMPORTANT NEW TRAIN.—"The San Francisco Chief" inaugurated a new service for the Santa Fe—





AN IMPORTANT NEW TERMINAL.—The City of New Orleans and its railroads got together on a \$56 million project that licked knotty grade crossing problems and provides a Union Passenger Terminal of both beauty and utility.



A FUTURE REASSURED for the Railway Express Agency which began operating under a new long-term contract with its railroad owners. The Agency has sharpened its sales tools to counter "loaded" competition from U.S. Parcel Post.

OTHER IMPORTANT EVENTS IN '54



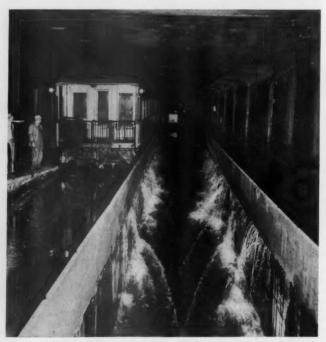
FUTURE MANAGEMENT, where to find it, how to select it and how to train it, occupied a growing portion of present management's time. One big worry: College men rate rail jobs unattractive and as entailing "too many years as a clerk" before achieving responsible positions.



ON THE LABOR FRONT things were fairly quiet. Most new demands were based upon inter-union jockeying for prestige although the "trainman package" settlement was generally accepted. Union shop issues appear some distance from decision.



ON THE WEATHER FRONT the story was one of floods in the midwest and southwest, hurricanes along the



Atlantic seaboard. Flood damage was concentrated at a few points but the "big winds" hit hard into Canada.

STATISTICAL REVIEW OF 1954

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REPRESENTATIVE EQUIPMENT ISSUES

Issues Sold in 1954

			Bank .	lashe 20	old at	
Road	Maturity	Amount	Int. Rate%	Price	Cost	Purchaser
Bangar & Aroastack	1955-1969	\$ 975,000	236	99,386	2.00	R. W. Pressprich & Co.
bunger a rassaussauttititititititititititi	1955-1969	2.850,000	256	99.019	2.02	Halany Sturret & Co.
Canadian Pacific, Ser. M	1055-1060	25,020,000		******		A. E. Ames & Co., Salomon Bros. & Hetzler Halsey, Stuart & Co., et al. Halsey, Stuart & Co., et al.
Central of Georgia, Ser. Z	1955-1969	2,655,000	300000000000000000000000000000000000000	99,269	3.01	Halsey Stuart & Co. et al
Central of New Jersey	1955-1969	1,815,000	212	99.4096	3.24	Halsey Stuart & Co. et al
Chicago & North Western	1955-1960	6,495,000	- 62	99.34	3.00	Halsey, Steart & Co., et al. Halsey, Steart & Co., et al.
	1955-1969	4,695,000	642	99.509	2.97	Holesy Stuart & Co. et al
Chicago Rudington & Ouiney	1955-1969	7,350,000	982	99.808	2.65	Salomon Bros. & Hutzler, et al.
Chicago, Burlington & Quincy Chicago, Milwaukse, St. Paul & Pacific, Ser. RR Ser. SS Ser. SS Ser. SS	1954-1969	7,650,000	912	99.819	3.15	Kidder, Peabody & Co., et al.
Conceyo, Milindones, St. Fast & Facility Ser. Reg.	1955-1969	5,100,000	362	99,313	2.86	Halany Stunet & Co. of al
C., CC	1955-1969	2,700,000	- R	99.036	2.90	Holesy Stuart & Co., of al.
Con TT	1955-1969	7,200,000	974	99.56	2.94	Halsey Stuart & Co., et al.
Delaware Lackswanna & Western Cox M.	1955-1969	5,700,000	262	99,5086	2.83	Halsey, Stuart & Co., et al. Halsey, Stuart & Co., et al. Salomon Bros. & Hutzler, et al.
Delaware, Lackawanna & Western, Ser. M Durham & Southern.	1954-1963	300,000	276	99.3000		Statitus Pank of Dusham N. C
Erie	1934-1903	5,400,000		99,116	3.16	Fidelity Bank of Durham, N. C. Kidder, Peobody & Co., et al. Salomon Bros. & Huizler, et al.
Great Northern	1955-1909	5,070,000	236	99.394	2.85	Calaman Page 6 Hatalan at al
Great Normera			273	99.2793	2.74	Salomon Bros. & Hutzler, et al.
IIII. I. C. I. C. AA	1955-1969	8,880,000	278		2.63	Halsey, Stuart & Co., et al.
Wilness Cantral, Sar. 38	1954-1969	6,000,000	3.79	99.16		Fighey, Studit & Co., et al.
Wilnels Central, Ser. 39	1954-1909	6,300,000	219	99.4179	2.59	Haisey, Stuart & Co., et al. Blair, Rollins & Co., et al.
international-Great Northern, Ser. Fr	1955-1989	1,845,000	X38	99.258	3.01	Salomon Bros. & Hutzler, et al.
Louisville & Mashville, Ser. M	1954-1968	1,995,000	229	99.1776	2.64	Blair, Rollins & Co.
Minn., St. Paul & Sault Ste. Marie, Ser. B	1955-1909	1,950,000	2 15 2 15 3 16	99.573	2.94	Bigir, Rollins & Co.
Missouri Pacific, Ser. WW	1955-1989	3,000,000	379	99.224	3.27	Blair, Rollins & Co , et al.
Louisville & Nostiville Ser. M., Mins, St. Poul & South Ste. Marie, Ser. B., Missouri Pacific, Ser. W., Ser. XX., Ser. YY.	1955-1909	3,000,000	3000	99.309	2.88	Halsey, Steart & Co., et al. Halsey, Steart & Co., et al.
Ser. YY.	1956-1970	4,575,000	858	99.5799	2.96	Halley, Swart & Co., et al.
New York Central	1954-1959	680,000*	374	4.000		Bethlehem Steel Company
New York, Chicago & St. Louis	1954-1959	714,000*	356		2222	Bethlehem Steel Company
New York, Chicago & St. Louis	1954-1968	2,970,000	226	99.36	2.75	Haisey, Steart & Co., et al. R. W. Pressprich & Co., et al.
	1955-1969	1,020,000	X 29	99.06	2.65	R. W. Pressprich & Co., et al.
New York, New Haven & Hartford, Ser. A	1955-1969	6,600,000		98.38	4.05	Salomon Bros. & Hutzler, et al.
Ser. B	1955-1969	6,180,000	3	98.3833	3.28	Salomon Bros. & Hutzler, et al.
Northern Pacific	1955-1969	2,595,000	3	98.5533	3.25	Salamon Bros. & Hutzler, et al. Haisey, Steart & Co., et al.
Northern Pacific	1955-1969	4,575,000	229	99.3699	2.74	Halsey, Stuart & Co., et al.
	1955-1969	5,220,000	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	99.7823	2.80	Salomon Bros. & Hutzler, et al.
Pennsylvania, Ser. BB	1955-1969	5,265,000	256	99.5626	2.84	Halsey, Steart & Co., et al.
Railway Express Agency		9,750,000*	234		2.5	Salomon Bros. & Hutzler, et al.
St. Louis, Brownsville & Mexico, Ser. FF	1955-1969	1,845,000	- 234	99.319	2.87	Halsey, Stuart & Co., et al.
St. Louis-San Francisco, Ser. M	1955-1969	7,500,000	3	99.43	3.11	Halsey, Stuart & Co., et al.
Seaboard Air Line, Ser. O	1955-1969	5,010,000	256	99.433	2.71	Salomon Bros. & Hutzler, et al.
Southern Pacific, Ser. MM	1955-1969	9,660,000	2000	99.77	2.80	Salomon Bros. & Hutzler, et al.
Ser. NN	1955-1969	7,905,000	256	99.7193	2.68	Salomon Bros. & Hutzler, et al.
Ser. OO	1955-1969	8,505,000	23%	99.526	2.71	Saloman Bros. & Hutzler, et al.
Texas & Pacific, Ser. O	1955-1964	1,240,000	2	98.484	2.23	First National Bank of Dallas, et al.
Virginian, Ser. D	1955-1969	4,200,000	236	99.53	2.80	Kidder, Peabody & Co., et al.
Western Maryland, Ser. R	1954-1968	4,830,000	3	99,4433	3.11	Halsey, Steart & Co.
			Je . C			

B CHANGES IN CASH & CURRENT ASSETS

	Cash & Tom	porary Cosh			Total Current Assets		t Liabilities	Excess of Assets ove	Inc. or	
	1954	1953	inc. or Dec.	End of Sept. 1954	End of Sept. 1953	End of Sept. 1954	End of Sept. 1953	End of Sept. 1954	End of Sept. 1953	Dec.
ATASFBAOBAM	\$124,558,519	\$139,469,179	- 10.7	\$202,242,940	\$239,692,596	\$109,681,748	\$131,002,597	\$99,561,199	\$108,689,999	- 14.8
	16,677,555	17,838,058	- 6.5	46,609,727	53,383,858	92,310,910	24,961,239	94,998,817	28,422,619	- 14.5
	37,259,433	55,371,502	- 32.7	104,398,944	120,284,907	56,410,442	67,195,298	47,988,509	53,089,609	- 9.6
	11,896,096	17,109,203	- 30.5	23,847,030	31,444,609	13,694,080	16,279,989	10,153,173	15,164,620	- 33.1
CofGeCofNjCAOCAEJ	8,196,693	9,127,559	- 10.2	15,019,959	16,544,975	7,983,470	7,826,292	7,036,489	8,718,683	- 19.3
	4,684,604	3,909,853	+ 19.8	18,237,214	19,167,446	11,001,779	10,396,976	7,235,435	8,770,476	- 17.5
	43,805,524	41,999,879	+ 4.3	90,845,767	95,330,995	52,190,826	73,650,157	38,654,941	21,680,838	+ 78.3
	1,293,592	2,019,770	- 35.9	5,817,242	8,084,206	5,557,036	6,817,733	260,206	1,266,473	- 79.4
CANW	11,745,492	17,679,126	- 33.6	49,931,735	57,520,933	37,643,699	39,408,481	12,288,036	18,112,452	- 32.2
	41,540,899	49,297,813	- 15.7	79,479,600	94,063,009	45,522,616	57,745,523	33,956,984	36,317,486	- 6.5
	6,357,547	4,977,457	+ 27.7	10,211,071	9,316,850	6,811,904	7,601,774	3,399,167	1,715,076	+ 98.2
	30,594,337	32,954,550	- 7.2	76,265,465	87,398,483	37,862,960	43,529,311	38,402,505	43,869,172	- 12.5
CRIAP	28,919,363	32,318,312	- 10.5	60,153,264	67,156,516	36,774,293	44,634,982	23,378,971	22,521,534	+ 3.8
	1,093,563	1,226,451	- 10.8	6,341,926	6,869,718	4,954,436	5,871,614	1,387,490	998,104	+ 39.0
	14,635,749	16,716,409	- 12.4	92,680,172	25,315,397	4,849,756	6,207,415	17,830,416	19,107,982	- 6.7
	12,070,670	12,770,527	- 5.5	29,130,701	31,898,705	10,367,527	13,342,794	18,763,174	18,555,911	+ 1.1
DARGW DMAIR EJAE	22,797,185 7,571,448 4,373,258 12,079,050	32,555,304 17,613,372 11,445,824 25,580,737	- 30.0 - 57.0 - 61.8 - 52.8	37,135,252 15,988,104 7,198,371 36,713,926	48,472,512 27,642,744 15,950,886 52,531,201	16,294,765 12,986,937 11,567,985 26,467,923	21,381,330 25,191,774 17,986,951 37,537,378	20,840,487 3,001,167 -4,369,614 10,246,003	27,091,182 9,450,970 -2,036,065 14,993,823	- 23,1 + 22,4 - 31.7
GTW	2,306,445	1,885,544	+ 22.3	11,565,268	11,571,234	8,567,077	8,604,247	2,998,191	2,966,987	+ 1.0
	51,533,849	52,310,808	- 1.5	99,911,847	105,419,109	45,868,572	51,640,777	54,043,275	53,778,332	+ 0.5
	19,433,403	21,771,438	- 10.7	38,642,761	45,124,656	22,616,724	26,810,825	16,026,037	18,313,831	- 12.5
	37,463,753	61,545,326	- 39.1	148,871,874	112,619,109	120,656,675	68,553,280	28,215,199	44,065,829	- 36.0
LVLANMSIPASSM	10,709,681 5,701,208 42,178,242 6,402,521	15,013,293 4,481,700 45,607,355 6,866,994	- 28.6 + 27.2 - 7.5 - 6.7	19,523,974 13,871,327 82,026,642 15,845,139	25,453,793 13,125,020 91,726,198 18,241,235	12,406,511 13,973,702 26,140,011 9,548,651	15,129,466 29,447,146 44,695,500 10,329,300	7,117,463 -102,375 55,886,631 6,296,488	10,324,327 -16,322,126 47,030,698 7,911,935	- 31.1 + 18.8 - 20.4
M-K-TMPNYC	13,415,327	19,298,383	- 30.4	27,459,328	34,541,241	15,131,792	90,059,716	12,327,536	14,481,525	- 14.9
	70,971,828	66,365,724	+ 6.9	101,037,272	99,480,705	99,973,857	34,992,377	71,063,415	64,488,328	+ 10.2
	35,787,149	63,664,219	- 43.8	148,404,973	177,119,765	123,972,546	132,357,690	24,432,427	44,762,075	- 45.4
	33,130,397	36,860,374	- 10.1	53,785,804	60,578,713	32,720,874	38,538,036	21,064,930	22,040,677	- 4.4
NYNHAH NAW NP PRR	15,998,186 33,442,638 21,821,234 138,169,207	13,042,393 32,791,871 20,221,338 164,059,054	+ 22.6 + 1.9 + 7.9 - 15.8	35,372,120 71,253,636 61,435,531 265,456,703	29,910,289 80,283,933 65,863,308 298,673,921	30,633,213 32,526,030 32,714,524 126,008,824	34,215,024 43,334,854 36,919,309 152,336,076	4,738,907 38,727,606 28,721,007 139,447,879	-4,304,735 36,949,079 28,943,999 146,337,845	+ †4.8 - 4.7
PALE. Reading. StL-SF. StLSW.	4,490,224	9,627,678	- 53.3	11,562,019	18,375,391	7,674,616	15,900,501	3,887,403	9,474,820	+ 57.0
	14,728,639	16,302,606	- 9.6	31,979,029	35,218,423	18,720,792	25,990,247	13,258,237	9,228,176	+ 43.7
	22,939,510	37,090,086	- 38.1	42,427,217	58,577,309	21,825,038	27,603,262	20,602,179	30,974,047	- 33.5
	26,091,785	24,451,163	+ 6.7	34,284,523	33,199,141	15,012,918	17,975,203	19,271,605	15,223,938	+ 26.6
SAL	36,362,528	35,962,671	+ 1.1	55,977,037	59,900,369	25,712,324	30,577,839	30,264,713	29,322,536	+ 3.9
	87,600,761	94,526,523	- 7.3	122,285,347	134,494,248	64,400,952	78,609,376	57,884,395	55,884,872	+ 3.6
	124,145,139	133,866,340	- 7.2	209,107,350	235,977,603	108,764,734	135,928,047	100,342,616	100,049,556	+ .3
	20,075,697	22,765,460	- 11.8	33,336,407	37,243,906	10,867,468	15,680,180	22,468,939	21,563,726	+ 4.2
UPWabash	104,339,626 19,531,528	112,584,417 25,632,237	- 7.3 - 23.8	196,282,954	224,931,092 38,323,198	112,021,257 22,277,870	123,265,085 27,278,454	84,961,697 8,849,917	101,666,007 11,044,744	- 17.1 - 19.9

Certain capital and other reserve funds are not included in this tabulation.

† Certain liabilities exceeded current assets in one or both years.

G 1954 RAILROAD SECURITIES ISSUES

Ratiroed	Type of Security	Total Amount	Selling Price	nterest Cost	Purpose of lasee
Aliren, Conton & Youngstown	Common stock	114,935 sh. 12,500 sk.	*****	*****	To effect 5-for-1 split of outstanding common stock, For sale to officers and supervisory employees under stock option plan.
Conedian National	33/% bonds	\$200,000,000	99.50	3.78	To redeem naturing 5% bonds, and repay leans from Canadian government.
	21/4% bonds	\$250,000,000	99.00	2.89	To repay temporary capital advances from Canadian apvernment, and finance capital expenditures.
Chicago Great Western	3 1/4% coll. fruit bands Common stock	\$ 5,000,000 2,500,000 sh.	90,86	3.98	government, and monace capture separatures. To pay notes and provide working capital. To ruciasily stock from "preferred" to "common", effect a 2-for-1 pill, and increase from 150,000 to 300,000 number of shores available for sale to afficers underrestricted stock option plan.
Minols Central	Common stock Preferred stock	3,088,908 sh. 372,914 sh.	*****	*****	To effect 2-for-1 split of former common and preferred stocks; and provide for conversion of preferred to common.
	Common stock	140,000 sh.	*****		To be sold to officers and key employees under stock
	31/2% 1st mige, bonds, Series G	\$ 25,000,000	98.84	3.32	option plan. To redeem \$25,000,000 of 434% consol, mige, bonds,
	31/1% 1st migs. bonds, Series H	\$ 60,000,000	99.30	3.41	Series D. To redeem \$60,628,000 of 31/2% consol. migs. bonds, Series E.

1954 RAILROAD SECURITIES ISSUES (Continued)

Relirond	Type of Security	Total Amount	Selling Price	Interest Cost	Purpose of Issue
Kansas City Southern	334% 1st mtge. bonds, Series C	\$ 50,000,000	101.14	3.19	To redeem outstanding 4% Series A and 3 1/4% Series B bonds
Lakefront Dock & R. R. Terminel .	31/2% 1st mige. bonds, Series B	\$ 3,650,000	99.46	3.79	To reimburse B&O and NYC for advances made for
Long Island	5% gen. mige. bonds, Series A 5% gen. mige. bonds, Series B 5% gen. mige. bonds, Series C 4% gen. mige. bonds, Series D Interest certificate Promissory note	\$ 3,750,000 1,750,000 6,298,000 39,930,000 9,857,983 6,000,000			capital purposes. To be issued to Pensayivania Railroad (Series A and B bonds), to existing security holders (Series D bonds and interest certificate); and to creditors (Series C bonds and note) to provide for reorganization and rehabilitation of Li.
Louisville & Nashville	3%% 1st and ref. miga, bonds, Series I	\$30,350,000	98.23	3,45	To redeem maturing 4% bonds and for other capital
Minnespolis & St. Louis New York, Chicago & St. Louis	Common stock 3% promissory note	200,000 sh. \$ 2,600,000	Par	3.0	purposes. Stock dividend, 1/4 new share for each share held. To refire part of Series A 6% cumulative preferred stack.
Northern Pacific.	Common stock	190,000 sh.	*****	*****	To implement stock purchase plan for officers and key employees.
Pittsbergh & West Virginia	4% call, trest bonds 334% 1st mige, bonds, Series A 4% 1st mige, bonds	\$52,000,000 \$ 7,500,000 \$ 1,000,000	98.13 98.40 97.79	4.11 3.07 4.35	employees. To redeem 4½ and 5% bands. To redeem outstanding 4½% bands. To pay notes issued to provide temperary funds for capital improvements.
Spokane International	Common stock	28,464 sh.	\$15.	*****	To be sold to present stockholders, to pay for addi-
Western Maryland	335% 1st mige, bonds, Series C	\$16,000,000	99.07	3.56	tions and betterments and provide working capital. To redeem \$12,632,000 of 434% bonds and reimburge
Western Pacific	5% income debentures Common stock	\$22,500,000 37,500 jsh.	*****	::::}	road's treasury, in part, for capital expenditures. P To be exchanged on unit basis for up to 225,000 sh. of Series A 5% preferred stock.

NEW SECURITIES ISSUES, 1934-1954

(Amounts in thousands of dollars)

Year	Bonds	Stock	Railroad total	Total all industries	Ratiroad as per cent of total
1934	\$176,423	*****	\$176,423	\$397.240	44.4
1935	126,031		126,031	2,331,630	
1936	793,618	\$3,838	797,456	4,571,670	
1937	344,257		344,257	2,309,524	14.9
1938	54,873		54.873	2,154,664	
1939	185,474	233	185,707	2,164,007	8.6
1940	323,912	*****	323,912	2,677,173	12.1
1941	366,313	*****	366,313	2,666,887	13.7
1942	47,726		47,726	1,062,288	4.5
1943	161,179	*****	161,179	1,169,699	13.8
1944	609,010	350	609,360	3,201,891	19.0
1945	1,453,517	504	1,454,021	6,010,985	24.2
1946	711,119	*****	711,119	6,899,646	10.3
1947	285,680		285,680	6,576,824	4.3
1948	623,348		623,348	7,077,820	8.8
1949	459,982	*****	459,989	6,051,550	7.6
1950	554,100		554,100	6,361,043	8.7
1951	330,021	5,066	335,087	7,741,099	4.3
1952	524,205	1,000	525,205	9,534,169	5.5
1953	302,397	.,,,,,	302,397	8,897,996	3.4
1954*	365,757	427	366,184	8,007,203	4.6

* 10 months total.
Compiled by Securities and Exchange Commission.

1951-1954 SIGNAL CONSTRUCTION

	1954	1953	1952	1951
Automatic block signals	678	967	1,318	1,189
Interlockings				1
Signals and switches At new plants	870	1,006	864	870
At rebuilt plants	283	826	508	405
At automatic plants	136	151	133	116
Saring switches	130	131	133	110
Spring buffer mechanisms	140	162	177	163
Mechanical facing-point lacks	50	84	70	58
Signals at spring switches	203	256	317	280
Centralized traffic control.	203	230	317	200
Power switch machines	548	680	597	396
Semi-automatic signals	1,496	1.845	1,512	1.153
Intermediate signals in CTC territory	967	956	859	587
Classification yards	,,,,	750		301
Car retarders	40	30	57	10
Power switch machines	163	156	304	10
Highway crossing protection				
Number of crossings at which new installa-				
tions were made in year	1,362	1,491	1,435	1,406
	-	-	-	
Totals	6,967	8,610	8,144	6,674

CENTRALIZED TRAFFIC CONTROL

INSTALLED IN 1954	Miles of	No. of Power	No. of Lever Controll-	No. of Inter- mediate Auto- matic	
Railroad and Location	Road	Switches		Signals	
ACL	***		45		Union
Ambrose, GaWaycross Uceta, FlaYbor City Yemassee, S. C	64.0s 1.7d 1.9s	93 13 6	63 17 6	22	Union
Norman, Okla -Pweell	15.5s 6.3s	11	10 17	8	Union
Guthrie, Okla	****	6	10	**	Union
Wygnewood Okla Procell	28.54	15	33	12	Union
Gethrie, Okla. Newkirk, Okla. Wynnewood, OklaPurceli. Ricker, TexBrownwood.	4.66	6	14	**	Union
CN Port Arthur, OntConmee Nepean, OntHurdman	35.0d 30.0s	ii	37	41 14	GRS GRS
Saginaw, MichClare	52.6s 40.5s	9	32 31	11 20	GRS Union
Pac. Jct., Iowa-Oveapolis, Neb	5.1s 3.8d	1	5		GRS
Ashland, NebLincoln	24.38	13	46	12	GRS
Omaha, Neb	2.3d	30	36	• •	GRS
Kingsport, Tenn	4.0	2	4	0.0	Union
Wichita Falls, TexEstelline	130.0s 1.1d	15	95	42	GRS
Pt. Edward, N. YWhitehail	13.9s 2.0d	4	12	12	GRS
Binghamton, N. YHarpersville	15.6d 2.1d	2	6	22	GRS
GN Delano, MinnWillmar	52.6s 12.2d	30	90	57	GRS
Blockfoot, MostBrowning		3	12	6	GRS
Libby, MontTroy		4	16	14	GRS
Springfield, IllDivernon	16.6	- 3	28	8	Union
Mena, ArkDeQueen	53.0	-14	42	29	GRS
Kirkstall, TennCorbin, Ky	80.0	17	53	40	Union
N. Little Rock, Ark, Holland N. Jct., III, Gale	17.2d 3.1d	6	7	6	GRS GRS
NCASIL Brucoton, TennAulon	135.0s	16	75	72	Union
NaW Petersburg, VaCamp Lee Roanoke, Va	3.3e 3.9e	*	8	*	Union Union
Braintree, Mass,-Buzzards Bay	44.50	15	36	25	GRS
Pale Neville, PaW. Economy ONSAL	12.71	**		12	Union
Seven Islands, QueSilver Yard . SIL-SF	353.01	25	97	71	GRS
Amory, MissTours	83.7s 39.0d	15 13	70 36	40 61	Union Union

1954 CTC INSTALLATIONS (Continued)

Railroad and Location	Miles of	Power	No. of Lever Controll- ed Signals	No. of Inter- mediate Auto- matic Signals	Manufacturer
SAL	02.4				
Hayner, GaKingsland Gross, FlaYulee, Fla	23.18	4	18	10	Union
Jacksonville, FlaBaldwin	6.1s	7	10	2	Union
SILSW	14,30		21		UNION
Jonesboro, ArkBrinkley	71.40	13	50	40	Union
\$				-	
Crescent Lake, OreEugene	97.46	45	130	78	Union
Saluda, N. CMetrose	4.0s	5	12		GRS
UP	4,00				Ono
Hermosa, WyoLaramie	19.0d	44	75	76	Union
Speer, WyoCarr, Col	16.0s	8	20	14	Union
Kansas City, Kan	3.2d	12	26	2	Union
Virginian Elmore, W. VaGilbert	41.20	18	50	13	GRS
Wabash	41,23	10	30	13	OKS
Bement, III,-Tolono	17.79	4	12	10	Union
	2,4d	-			-
WM .					
Cumberland, MdDeal, Pa	17.8s	5	12	22	Union
Howardville, MdEmory Grove.	4.0d				
Flowerdville, IvidEmory Cross	8,9s	2	0		Union
WP	1.000				
Hayward, CalStockton		21			Union
	-	-	- 404	-	
	,600.6s 165.1d	548	1,496	967	

INSTALLED

AUTOMATIC BLOCK SIGNALING (Continued)

steld, W. Va...... 1.1s

ille, Ky.-Harrodsburg..... 74.0s

Railroad and Location

1954

GRS

GRS

Union

BLOCK SIGNALING

INSTALLED IN 1954

Railrood and Lucation	Miles of Road	No. of Signals	Manu- facturer
ACL Bennett, S. CHardeeville	84.0d 1.1d	74	Union Union
Ba.A. Hermon, Ma	1.0d	2	GRS
Ely, VtWhite River Jct	19.5s 1.0s	47	GRS GRS
Jockman, B. CBlue River	68.4s	93	GRS
Medonte, OntMocTier St. Johnsbury, VtWalls River. Brooks, AltuGleichen Regino, Sask. (BAO	36.0s 20.0s 60.0s 3.9d	58) 99) 71) 4	Union and GRS GRS
Galesburg, IllBushnell	20.5d	16	GRS
DLaw lowe-Anite	10.0s	10	Union
Dation, PaFactoryville. Craigs, N. YNo. Alexandria	4.2d 18.8d	18	Union
Holman, MinnMoore	7.08	12	GRS
Boston-Revers	2.2d	22	GRS

1954 RETARDER INSTALLATIONS

Railroad	Location	No. of Retarders	Rail Feet of Retarder	No. of Power Switches	No. of Track Circuits	No. of Signals	No. of Classification Tracks	No. of Towers	No. of Control Machines	Manufacture
Bowater Paper Co. Iron Ore Co. Canada	Cathoun, Tenn. Seven Islands, Que.	1+	110 306 87 99	7	iż	12			**	GRS GRS Union GRS
LAN-NCASIL. Norfolk & Western Orinoco Min. Co. Pitt. & Coe. Dock	Nashville, Tean, I Bluefield, W. Va. Puerto Ordaz, Ven. Conneaut, O.	11 2 +	99 1373 312 110 525 1169 743	55 11 3	7 50 11 3	5	56	1	1	GRS Union Union Union Union Union Union Union Union
SAL Union	Hamlet, N. C. Duquesno, Pa.	11	1169 743	57 26	234 26	4	50	i	1	Union
Albert Retroden		40	4834	165	343	36				

INTERLOCKINGS INSTALLED (Continued)

Railroad and Location	No. of Home Signals	No. of Power Switches	Manu- Jacturer
LV		-	
Easton, Pa	6	5	GRS
Jeney City, N. J.	4	2	
Manville, N. J	13	9	GRS
Geatilly, La		3	GRS
MTA			Ons
Revere, Mass	6	5	GRS
NYCASIL Chicogo			
NYNHAH	6	4	****
New Hoven, Conn	53	49	Union
NOUPT	-		O.J.O.
New Orleans, La	88	80	GRS
NOTC	40		COC
East City Switch	19	8	GRS
NaW	2,		Ons
Bristol, Tenn	10	8	Union
NP	17.		
Livingston, Mont	4	3	GRS
Pennsylvania Chatfield, Ohio			Union
Philadelphia Transit			Onion
Philadelphia, Pa		4	Union
PALE			
W. Economy, Pa	2 -	1	Union
W. Economy, Pd.			Owion
Sand Creek, Colo	7	5	Union
	487	383	

Other interlocking installed in 1954 includes 36 automatic plants on 20 roads including 146 signals and 10 switch machines; and 182 signals and 101 switch machines added at 35 interlockings which were rebuilt. Also 29 railtoods in stalled a total of 140 spring switches, of which 59 were equipped with mechanical facing-point locks, and 203 signals were installed to protect these spring switches. The Union Pacific installed three-aspect cab signaling on 227 miles of double track with cab signals on 175 locomotives, the equipment being furnished by the Union Switch & Signal Co.

YARD RADIO INSTALLATIONS

Railroad	No. of Yards with Radio	No. of Locations Equipped	No. of Fixed Stations	No. of Walkie- Talkie Sets	Manufacturer
ATASF	6		2	**	Bendix
AASIAB ACL BAO BAM	1 3 2 1	1 3 4 9	1 3 2 7	••	Federal Motorola Bendix Westinghouse Motorola
CN	7	15	1	3	GRS Rogen-Maj.
CalG	j	4 5 4 10*	i	4	Westinghouse Motorola Bendix Motorola Lorain
CBAO	-	33	5	••	Westinghouse Westinghouse
CIAL	1	2			Motorola
CRIAP	11	15	3	4	Bendix Motorola
DARGW	1	2		*	Bendix Motorola
Erio	1	4*			Westinghouse
GN IC	1	30		52	Bendix Motorola
KCS KCT	1		1	48	Ry Rad Tel
KAIT	1	16	-	**	Motorola Motorola
LAN .	2	5	1 1	41	Bendix
MP	1	11	1	26	Motorola Motorola
NYC	2	4			Bendix
NAW NP	1	12	3	4	Westinghouse Bendix
nn.n			**	1	Motorola
PRR	4	17	1	**	Motorola GE
ONSAL	1	40	4	10	Motorole
SIL-SF	9	18	9	26	Bendix GRS
SAL	1		1	2	Bendix
9	13	30	10	43 24	Motorola Hallicrafter
SP&5	2		2		Bendix Hallicrafter
TAP	4	15	4	10	Hallicrafter Bendly
Union	3	23	3	- 23	Bendlx Westinghouse
UP	10	10	**	24	Motorolg
Wabash	ï	*	1		Bendix Motorola

YARD RADIO INSTALLATIONS (Continued)

Railroad	No. of Yards with Radio	No. of Locations Equipped	No. of Fixed Stations	No. of Walkie- Talkie Sets	Manufacture "
WP	10	36	8	-	Bendix Doolittle
	**	2†	-	=	Doublie
Totals	116	453	105	251	
*Automobile					



INSTALLED IN 1954

1954

	Loui	dspeaker Syr	items	Intercommunications Systems				
Railroad	No. of Yards Equipped	No. of Two-Way Speakers	No. of Paging Speakers	No. of Systems Installed	No. of Tele- phones	No. of of Loud- Speaker		
ATASF			• •	4	14	91		
ACL	1	50	-36	1	4	4		
BAO	2	4	10	1	13	18		
BAM	**	**	0.0	- 1	13	449		
CN				i	25	17		
CAO	1	41	8	5	10	40		
CANW	1	36	6	7		*:		
CBAO		30	13	1	**	169		
CGW	1		9	1	14	44		
CMSIPAP	2	143	126	2	0.0	15		
CRIAP	2	10	12	1	**	1		
Clinchfield DLAW	1	0.0	40 90	**	0.0			
DARGW	- 1	14	10	-	18	7		
GN	1	2		Ä	48	63		
Indpls Union	1	5	0.0	1	**	2		
LAN	2	54	52	¥	22	35		
NYC	4	* 5	17	4	12	91		
PALE				1	12	42		
NYNHAH	1		22		**	**		
NAW	3	22	17	1	10	12		
ONSAL	3	11	21	- 1	50	31		
Reading	- 1	2		9	30			
RF&P	1	20			**	**		
SIL-SF	**			1		5		
SAL	- 1	91	43	**		34		
Southern		**	8	3	50	36		
CANW		**		3	**	7		
CNOATI	1	80	12	0.0		49		
NOANE	**	44	**	4	0.0	6		
SP-TANO TAP		74	28 15		0.0	900		
Union	- 1	12	18	99	**	88		
UP	2	96	12	1	7	6		
Virginian	1	27	17	00	**	22		
Wobash WP		40		1	**	ĆB		
WF				-	**	11		
Totals *Outlets	44	909	596	59	393	883		



INSTALLED IN 1954

Railroad	No. of Locos, Equipped	No. of Cobs, or other cars Equipped	No, of Fixed Ways, Sta.	No. of Walkie- Talkie Sets	Manufacturer
AAS	iii	61	1	**	Motorela Bendix
AASIAB ACL BALE	16	12	**	23	Meterola Bendix
BALE CofG CAO	9	3+	7	ět	Motorola Motorola Westleshouse
CGW	3	9	- 5	**	Bendix Ry Rad Tel

ROAD TRAIN COMMUNICATIONS (Continued)

Rational	No. of Locos. Equipped	No. of Cabe, or other cars Equipped	No. of Fixed Ways. Sta.	No. of Walkie- Talkie Sets	Manufacturer
CIAL CMSIPAP CRIAP CSSASB DLAW	10 34 32 26	4 90 2+ 17	1 4 1	6 30	Motorola Bendix Motorola RCA Bendix
DTAI Erie GN GMAO JCL	24 2 61 53 7	25 53 19	3 43 1 5	111	Federal Bendix Federal Bendix Motorola Motorola
KAIT LAN MP NYCASIL NP	15 54 6 23	33 41 6 32 18	1 12 14 14	44	Motorola Motorola Motorola Bendix Bendix Meterola
ONL PRR ONSAL Reading SeL-SF	15	15 17 23	ge 20 3 1	15 15 12	Motorola Femco Union Motorola Westingheuse Bendix
SAL Southern AGS CNOATP GSAF NOANE SUIRT	35 80 7 17 4 16	6011 53 5 19 2 7	7 2	35 43	Motorola Motorola Motorola Motorola Motorola Motorola
SP TANO Spokane lat TAP TPa W WM	87 4 12 - - 2 768	34 2 7 1+ 8	14 14 130	319	Motorola Motorola GE Bendix Motorola Bendix
+ Automobile of †Used on cabo	or fruck				

*Inductive
††Equipped with antenna and rack only, for use with walkie-talkie

GRADE CROSSING PROTECTION

INSTALLED IN 1954	No. of Crossings of which Flashing-Light	No. of Crossings at which Electrically Operated Gates and Flashing-
Rollroad	Signals only	ware Installed
ATASF	69	16
ACL		90
8&O	9.	20
BaM		9
CN	45 91	7
CG		
CAO		
CMSPAP	24	5
CANW	27	13
CRIAP	13	11
D&H	12	
FEC		93
GMAO		
GN	16	
K		7
440		13
NYCASIL		
NaW	10	
NP	23	6
NYC		24
NYNHAH	34	
Penasylvania		
Reading		10
SiL-SF.		6
Soo	13	4
SAL		4
Southern	43	.4
110	0.0	18
Wabash		4
On 25 other roads	86	37
	-	-
	985	379

This table lists only these railroads which installed new protection at 10 or more crossings in 1954, but the totals include the crossings at which protection was installed by otherroads.



COMMUNICATIONS INSTALLATIONS

UNITED STATES AND CANADA (1951-1954)

	1954	1953	1952	1951
Miles of new or rebeilt pole line Miles of new copper line wire. Increase in miles of road dispatched by telephone New mileoge of long-distance telephone circuits New mileoge of steleproph circuits Place mileoge of strinting telegraph circuits New mileoge of strinting telegraph circuits New mileoge of communications circuits derived by see of corrier.	8,244 9,383 1,708 27,956 59,257 61,751 139,570	7,314 23,902 2,876 29,123 67,501 101,432 181,010	7,101 19,348 12,446 50,909 113,417 175,696 329,876	7,141 14,838 1,600 19,201 47,260 28,058 84,769
Total mileage of new communications circuits	148,964	198,056	340,022	94,519
Road train communications Number of locomotives equipped. Number of cabooses or other cans equipped. Number of Read wayside stations. Number of walled-relation sets.	768 614 138 312	808 500 151 566	664 383 80 348	613 926 95
	1,832	2,025	1,475	1,636
Yard radio communications Number of locomotives equipped. Number of fixed stations. Number of walked-talkin sets.	453 105 251	424 103 188	327 99 103	253 52
	809	715	529	305
Yard loodspeaker systems Number of control points. Number of two-way speakers. Number of pogling speakers.	111 909 596	66 1,015 351	161 1,906 771	79 806 305
Total number of speckets	1,505	1,366	2,677	1,111
Intercommunications systems, ineighthouses, etc. Number of control points. Number of telephones. Number of loadspeakers.	234 303 003	187 596 604	305 338 779	0000
Total number of telephones and speciers	1,266	1,200 5,306	1,117 5,798	3,059

REPORTED IN 1954

By FRED C. MILES

Associate Editor

THE ACCOMPANYING detailed lists of railroad cars and locomotives ordered in 1954 were compiled by Railway Age from reports submitted by railroads, private car lines, industrial firms, and contract builders of locomotives and cars.

Locomotives ordered last year for domestic service, according to the reports, totaled 1,026 units, all diesel-electric, except for one steam turbine-electric locomotive and five diesel-hydraulics. Export orders were placed with

U. S. builders for 175 units last year, all diesel-electric except for 50 steam locomotives and one diesel-hydraulic. Orders were placed in Canada by Canadian purchasers for 232 units.

Immediately below is a breakdown, by types, of freight and passenger cars ordered and delivered in 1954 and 1953, as reported to the American Railway Car Institute. Figures for 1954 deliveries and orders are for 11 months only.

Number and Classification of Passenger-Train Cars Ordered for Domestic Use (Carbuilder and Railroad Shops)

					Refrig.	ing &			Postal &				Treop			
Year		Coach	Comb.	Exp.	& Milk	Comb.	efc.	Dining	Comb.	Other	& M.U.	Prop.	Hosp.	Sleep.	Kitch.	Total
1954	*****************************	90	0	2	0	48	10	5	0	5	100	62	0	0	0	322
1953	***************************************	59	0	25	0	62	8	0	0	0	0	10	0	0	0	164

Number and Classification of Passenger-Train Cars Delivered for Domestic Use (Carbuilder and Railroad Shops)

		Cooch	Bag. &	Sleeping	Parlor,		Postal		Troop	Troop	Troop	
Year	Coach	Comb.	Exp.	& Comb.	Club, etc.	Dining	& Comb.	Other	Hosp.	Sleep.	Kitch.	Total
1954	177	10	28	60	16	3	19	2	0	0	0	315

Number and Classification of Freight-Train Cars Ordered for Domestic Use

(Carbuilder and Railroad Shops)

Year		Box	Flat	Stock	Gondola	Hopper	Tank	Refrig.	Others	Non-Rev.	Total
1954	40000000000000000000000000000000000000	9,846	643	0	1,308	1,814	1,850	3,250	427	54	19,192
1953	***************************************	12,427	1.426	0	6.211	5.978	3.712	3,051	869	71	33,745

Freight-Train Cars Delivered—Domestic and Export

			Railroad and		
		Car-	Private Line		U. S.
Year		builders	Shops	Total	Export
1954	502027000000000000000000000000000000000	20,811	12,574	33,385	2,696
1953	***************************************	53,298	27,723	81,021	2,790

Source: American Railway Car Institute—1954 figures are for 11 months only.



For Railroad Service in the United States

Purchaser	21-	T		La	ngth			111.0.60	Date	Date of	0.44
Purchaser	Lio	Туре	Capacity	PE,	In.	Construction		Weight	Ordered	Delivery	Bullder
Aliquippa & Southern	25	Gondela	100,000	38	2	Steel		63,688	February	March '55	R. R. Shops
Atchison, Topeka & Santa Fe	100	Box	100,000	**		Steel			October	Jan. '55	Pullman-Standard
	300	Insulated Box	100,000	0.0		Steel			October	1955 1955	Pullman-Standard
	500	Gondola	140,000	0.0		Steel			October	1955	GATC
	250	Flat	100,000			Steel	1	*****	July .	1955	R. R. Shops
	150	Gondela	140,000	0.0		Steel			October	1955	R. R. Shops
Baltimore & Ohio	100	Fiat	140,000	53	6				December	March '55	R. R. Shopel
Banger & Aroustook	250	Refrigerator	40,000	40	0	Steel Frame		60,000	July	1955	Pacific Car & Fdy.

FREIGHT CAR ORDERS—United States Railroads (Continued)

Purchaser	No.	Type Pulpwood	Capacity 100,000	Ft.	in.	Construction	Weight 49,000	Date Ordered September	Delivery December	Builder R. R. Shops
Boston & Maine	500	Box Box	100,000 100,000 100,000 100,000	40	6	Steel Frame Steel Frame Steel Frame	53,200 55,000 53,200	October October	September November Jan. '55 March	Pullman-Standard Pullman-Standard Pullman-Standard
Chicago & Eastern Illinois	10	Air Dump Box Box		40 33 50	6 0	Steel Steel	55,400 52,400	1954 March	Amril	Magor
Chicago & Illinois Midland .	150	Box	100,000 100,000 100,000	50 50 40 40 30 21 40	6	Steel Steel	45,000 45,000	July June June	December July	Pullman-Standard ACF Industries
Chicago & North Western	150	Box Caboose	*****	30	6	Steel	50,400 42,000	January November November	1st qtr. '55 October	Intl. Ry. Car Bathleham Steel
	750 7 9	Ore Box Box	140,000 100,000 100,000 100,000	40	6 6	Steel Steel Steel	45,900 46,000 45,100	November May May September April February	Mar. '55 Jan. '55 July June	Pullman-Standard R. R. Shops Pullman-Standard ACF Industries inti. Ry. Car Bethlehem Steel Pullman-Standard Pullman-Standard Pullman-Standard
Chicago, Burlington & Quincy	200	Air Silde Refrigerator	100,000	40 29 42	6	Steel	46,500 62,500	September	June December August	GATC Pacific Car & Fdy. ACF Industries
Chicago Great Western Chicago, Milwaukss, St. Poul & Pacific	2	Tonk	19,000g.	48	9	Welded	66,000		Megen	
	30 35 15	Gondols Cov. Hopper Cov. Hopper	140,000 100,000 140,000	65	6	Steel Steel Steel	59,200	November May May	Jan. '55 December December	Bathleham Steel GATC GATC
Chicago, Rock Island & Pacific	100	Вок	100,000	50	6	Steel	52,000	January	1954	Pullman-Standard
Pochic	100	Cov. Hopper	140,000	29	3	Steel	51,000 50,000	January September	May October	Pullman-Standard Pullman-Standard Pullman-Standard
	100	Box BoggBox	100,000	65	6 9	Welded	78,733	August		ACF Industries
Delaware, Lackawanna & Western	500	Box	100,000	40	6	Steel Sheathed Steel Sheathed	48,600 49,700	August	1954-55	Magor
Deaver & Rio Gronde Western		Box Box	100,000	40	6	Steel Sheathed	49,700 58,200	August October February September December	1954-55 November	ACF Industries Pullman-Standard R. R. Shops
Datroit & Tolado Shore Line	100	Caboose Box		50	6	Steel	55,500	September	1955	Greenville Steel Car
Grand Trunk Western	50 100	Flat Refrigerator	100,000 140,000 100,000	50 75 40	0	Steel Steel Frame	70,000	December July November	Feb. '55 1955	Pacific Car & Fdy.
Great Northern	1,000	Box	100,000 30 yd 100,000	40	6	Steel	45,000	November 1954	Aug. '55	R. R. Shops B'ld'n-Lima-Hamilton
Gelf, Mobile & Ohio	900	Air Dump Woodrack Gondola	100,000	38	3	Steel	42,400 59,200 51,200	November	1955 Ign '55	R. R. Shops Rethlehem Steel
Lehigh Valley	100 250	Pulpwood	140,000	50	0 3	Steel Steel Steel Steel	51,200	1954 November September April May	1955 Jan. '55 July-Aug. July	R. R. Shops Greenville Steel Car Bethlehem Steel Pacific Car & Fdy. R. R. Shops B'ld'n-Lima-Hamiltot R. R. Shops Bethlehem Steel Pullman-Standard Fullman-Standard
Maine Central Minneapolis, St. Paul & Sault Ste, Marie	15	Cov. Hopper	140,000	29		Steel	50,700			
Sault Ste, Marie	100	Box Box	100,000	40	6	Steel	58,600 49,400	January	June July 1954-55	R. R. Shops R. R. Shops R. R. Shops
Minouti-Kunsas-Taxas	400 200	Box Box	100,000 100,000 100,000	40	6	Steel	49,400 49,400 46,100	September	December NovDec.	Pullman-Standard Pullman-Standard
Missouri Pocific	300	Box Flat	100,000	50	6	Steel Steel	52,500 53,700	September May	August	R. R. Shops
Noshville, Chattengons &		Woodpulp	100.000	38	0	Steel Frame Steel	42,600	1954	1954	R. R. Shops
St. Louis	1,250	Box Box	110,000 110,000 110,000	50	6	Steel Steel	55,053 61,500	1954 1954	November December December	Despatch Shops Despatch Shops Despatch Shops
New York, Chicago &	100	Box	110,000	50	6	Stool	54,600	1954	December	
St. Louis	150	Box	100,000	50	6	Steel	55,500	September May	1955	Greenville Steel Car R. R. Shops
New York, New Haven & Hartford	1	Flat				ev-1	50,000		NovDec.	Dullman Chandard
Northern Pacific	85 50	Cov. Hopper Mech. Refrigerator	140,000	50	3	Steel	50,900 85,200	janaary	1955	Pacific Car & Fdy.
Pennsylvania	500 400	Box Box	100,000 100,000 100,000	50	6	Steel Steel	58,000 54,000	November October	1955 1954-55	R. R. Shops
	600	Box Flat	100,000	40 75	6	Steel Steel	48,200 75,000	October August	1954-55 1954-55	Pacific Car & Fdy. R. R. Shope R. R. Shops R. R. Shops Bethlehem Steel
Philadelphia, Bethlehem & New England	20	Gondola	140,000	65	6	Steel	59,200	November	Jan. '55 October	
Reading	57	Flat Gondola	140,000	53	6	Cast Steel Frame	69,200	March November July	October Feb. '55 October	Bethlehem Steel R. R. Shops Bethlehem Steel Pullman-Standard Pullman-Standard Bethlehem Steel
RutlandSt. Louis Southwestern	50	Box	100,000	40		Steel	46,700 46,000	July	October 1954	Pullman-Standard
Seaboard Air Line	275	Box Cov. Hopper	100,000 140,000 100,000	40 39 40	6 6 5 6	Steel Steel	*****	August November November November	1954 March '55 1st qtr. '55	Bethlehem Steel Pullman-Standard
	400 500	Box Box	100 000	50	6	Steel	******	November	1st qtr '55	ACF Industries
Southern Pacific	750 150	Box Box	50,000 100,000 100,000	50	6	Steel Frame Steel	56,400 45,700	September	1955 1955	R. R. Shops
	50 15	Box Caboose	100,000	50	6	Steel	69,000 44,400	September September June	1955 1955	Pullman-Standard ACF Industries R. R. Shops R. R. Shops R. R. Shops R. R. Shops ACF Industries Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard
Toledo, Peoria & Western Union Pacific	200	Caboose Tank	19,000g			Walded	64.960	August	1955	R. R. Shops ACF Industries
	300	Automobile Sex	100,000	50	6	Steel	54,300 55,800	August	1954	Pullman-Standard Pullman-Standard
Wahash	100	Cov. Hopper	100,000	41	1	Steel Underframe	55,600	April May	October December September	Pullman-Standard R. R. Shops
Wastern Maryland	50 50	Cov. Hopper	100,000 140,000 100,000	29	3	Steel Steel	51,800	June March	September April	Pullman-Standard
Western Pacific	100	Box	100,000	50	6	Steel	55,800 55,800 55,800	August	Jan. '55 November	R. R. Shops Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard Pullman-Standard
	100	Dox	100,000	50	6	Steel	55,800	September	LeoAempet	Pullman-Signadia

Other Freight Car Orders—For Service in the United States

Purchaser Acme Steel Co	No.	Type Gondola	Capacity 140,000	En.	in.	Construction Steel	Weight	Date Ordered April	Date of Delivery August	Builder Thrail
Allied Chemical & Dye Corp., Solvay Process Div. American Sugar Refining Co. Armoo Steel Corp. Aftas Powder Co. Beel Foods, Inc. Bethlehem Steel Co.	5 5 35 5 10	Tank Cov. Hopper Cov. Hopper Gondola Tank Tank	80,000 140,000 140,000 140,000 8,000g. 8,000g.		1 1 6 6 9 3	Steel Steel Steel Welded Welded Steel	60,200 60,200 52,800 49,900 43,380 50,000	April January April May January October February	September June June 1954 April Jan. '55	GATC Pullman-Standard Pullman-Standard Bathlehem Steel ACF Industries ACF Industries Bethlehem Steel
Burlington Refrigerator Express Capitol Tank Car Corp	150	Refrigerator Tank	107,000 11,000g.	33	10	Steel Welded	64,300 64,000	November May	1955 October	Co. Shops ACF Industries
Champion International Paper Co Chicago, City of Columbia-Geneva Steel Crase Car Co	6 1 9 1	Pulpwood Hopper Gondola Gondola	100,000 100,000 180,000 140,000	45 36	6 0	Steel Steel	49,000 43,000	September March July April	December March March '55	Boston & Maine Shop Pullman-Standard Thrail

OTHER FREIGHT CAR ORDERS—United States (Continued)

Purchaser	No.	Туре	Capacity	Ft.	ingth In.	Construction	Weight	Ordered	Date of Delivery	Builder
Crosby Chemicals, Inc.	10	Tank Tank	100,000					September		GATC GATC
E. I. du Pont de Nemours	5			**	**		*****	September		
& CoEthyl Corp	16	Cov. Hopper Tank	140,000	**		Steel	*****	August October	December Jan. '55	GATC
	11	Tank	9,000	g. 30	9		59,520	August	*****	ACF Industries ACF Industries Thrall
Ford Motor Co	200	Tank Gondola	140,000			Steel	*****	September	Feb. '55	Throll
Fruit Growers Express	100	Refrigerator Refrigerator	128,000	44	5	Stee! Steel	81,300 56,300	April August	Jan. '55 1955	Co. Shops ACF Industries
General American Trans- partition Corp								1954		GATC
panensi cep,	1,000	Tank Refrigerator Cov. Hopper Tank Gondola	4 40 0000		3	65.13.1	*****	1954	122345	GATC
Walter Haffner Co	10	Cov. Hopper Toak	140,000 80,000 180,000	29	3		50,800	May	July December	Pullman-Standard GATC
Waiter Halfner Co Inland Steel Co Mather Stock Car Co	15	Gondola Tank	180,000	2. 37	6	Steel	41,600	November Identify	1955 June	Thrail ACF Industries
		Box Box	140,000					September	December	Co. Shops Thrall
Matica Equipment Corp National Sugar Refining Co North American Car Corp	20	Cov. Hopper	140,000	41	1	Steel Steel Steel	60,200	March January	June	Pullman-Stondard
North American Car Corp	275	Cov. Hopper Cov. Hopper Refrigerator	140,000	40	9	Steel Frame	50,000	January July February	March '55 1954	Pacific Car & Fdy.
	20	Tank Tank	140,000		**			April October	1954 July Jan. '55	GATC
		Cov. Hopper	140,000	29	3	Steel Steel Frame	50,800	1954		Pullman-Standard
Pacific Fruit Express Phillips Petroleum Co	150	Cov. Hopper Mech. Refrigerator Tank Gondola	130,000	44	6	******	76,000	May March	1955 September	SP Equipment Co.
Pure Oil Co	75	Gondola Tank	140,000		**	Steel Welded Welded		April 1954	August	Throll
Reserve Mining Co	350	Ore	8,000g 190,000	25	ä	Welded	56,000	August	*****	ACF Industries ACF Industries
Pacific Fruit Express Phillips Petroleum Co. Pure Oil Co. Republic Tank Car Co. Reserve Mining Co. Ringling Bros, & Bonnum & Bailey. Shipper Car Line Cesp. SHPX Third Corp.	2	Flat	100,000			Steel		October	April '55	Third
Shippers Car Line Corp	173	Tank Special Box Tank	140,000	40	6	Riveted	******	1954 January		ACF Industries ACF Industries ACF Industries ACF Industries
T	150	Tank Tank	******			******		1954 October	*****	ACF Industries
Tennessee Eastman Corp Texas Natural Gasoline Corp. Transportation Materiel	100	Tank	10,000g 100,000			*****	******	April	September	GATC
Command	50	Hopper	100,000			Steel		June	October	Thrail
	40	Box Tank	100,000 100,000 10,000g	50	6	Steel St. Steel	53,800 50,700 70,000 52,900 52,000	June March	November October	Thrail Puliman-Standard ACF Industries
Union Tank Car Co	125	Tonk	100,000			*****	70,000	June March	1954 1954	Co. Shops
	60	Tank Tank	100,000	**		******	52,900 52,000	March	1954 1954	Co. Shops Co. Shops Co. Shops ACF Industries
U. S. Dept, of Interior Western Fruit Express	50	Tank	180,000	41	4 5	Steel	236,500 81,300 61,000	June July August	1955	ACF Industries
Treatment tren Express	250	Refrigerator Refrigerator	100,000	40	0	Steel Frame	61,000	August February	1954	Co. Shops Pacific Car & Fdy.
Freight Car Order	-Fo	r Export								
Trengan out order				Lo	ngth			Date	Date of	
Purchaser	No.	Туре	Capacity	Ft.	In.	Construction	Weight	Ordered	Delivery	Builder
Aluminum Co. of America (for Jamaica)	4	Gondola	140,000	34	0	Steel	46,000	March	June	Magor GATC
Canadian General Transit Co.	2	Tank	100,000			*****		1954	September	GATC
Aluminum Co. of America (for Jamaica) Canadian General Transit Co. Chromium Mining & Smelt- ing Corp. (Canada) Compania Petrolera Calif., Ltd. (Guatemola) Esao Standard Oil Co. (Cotta Rica) Ferrocarril del Pac	5	Gondola	140,000			Steel		October	December	Thrail
Ltd. (Guatemala)	1	Tank	80,010		**			January	May	GATC
Costa Rica	4	Tenk	60,000					May	August	GATC
Ferrocarili del Pacifico	300	Box Hopper	100,000	40	6	Steel Steel	60,200 47,000	March	1954 June	Pullman-Standard Magor ACF Industries Pullman-Standard
Petroleos Mexicanos Santo a Jundiai (Brazil)	3	LGUK	7,700g.	32	1	Welded	43,400 44,600 42,300	lune	November	ACF Industries
	300	Box Gondola	100,000	40	6	Steel Steel	42,300	November November	1955 1955	Pullman-Standard GATC
Texas Co. (Costa Rica) Transportation Materiel	1	Tank	60,000	**		*****	*****	February	October	GATC
Command (for Korea)	825 565	Box Gondola	80,000		**		******	June	1954-55 OctNov.	Magor Magor
	303	Condon	1000	-	•	*****		,,,,,	Ou 101.	
Canada										
Purchaser	No.	Type	Capacity	Len Ft.	gth In.	Construction	Weight	Date Ordered	Date of Delivery	Builder
Canadian General Transit Co.	12	Tank		38	5	Steel	86,300	September	1954-55	Can. Car & Fdy.
	110	Tank U.S.	110,000 10,000g. 140,000	34 52	1 6	Steel Frame	62,000	September September	1954 December	Can. Car & Fdy. Can. Car & Fdy. Can. Car & Fdy.
Canadian National	110			-					1954-55	
Iron Ore Co. of Canada	850	Tonk U.S.	11,500g. 196,000	29	1	Steel Steel		October August	1955	Can, Car & Fdy, Can, Car & Fdy, National Steel Car National Steel Car National Steel Car
Pacific Great Eastern	25	Refrigerator Flat	100,000	40	0	Steel Frame	169,000 53,200	April	June November	National Steel Car
	25	Gondola	140,000	52	6	Steel	53,200 50,800	July	November	National Steel Car



For Railroad Service in the United States

Purchaser	No.	Wheel Arrange- ment	Service	Туре	Weight Lb.	Horse-	Date of Order	Date of Delivery	Bullder
Akron, Canton & Youngstown	2 3	8-B B-B	RdSw. Switching	Diesel-Elec.	246,000	1,600	January	April	Fairbanks, Morse Electro-Mative

LOCOMOTIVE ORDERS—United States Railroads (Continued)

LOCOMOTIVE ORDER		Wheel	res Kall	ironas (Con	rinued)				
Purchasel Baltimore & Ohio		mange- ment C-C B-B A1A-A1A B-B	Service RdSw. Switching RdSw. Passenger Switching RdSw. RdSw.	Type Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	Weight Lb. 330,000	Horse- power 1,750 900 1,750 2,400 1,000 1,600	Date of Order November December December December December December	Date of Delivery December 1955 1955 1955 1955 1955	Builder Electro-Motive Electro-Motive Electro-Motive Electro-Motive American Baldwin-Lina-Hamilton
Bangor & Arocstock	4 8	B-8 B-B B-B B-B	Switching Switching Bd Sw	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	248,000 196,000 233,900	1,600 1,750 1,200 800 1,600	May July July	1955 1955	Fairbanks, Morse Electro-Motive Electro-Motive American American G. ECummins
Cadiz	9	8-8 8-8 8-8	Switching Freight Road RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	90,000 248,000 248,000 258,000 258,000	1,600 1,600 1,750	July August August November November	1955 October October October October December Jan. '55	American American Electro-Motive
Chicago & North Western	9 3 10 7	8-8 8-8 C-C C-C	RdSw. Switching Switching RdSw. RdSw. RdSw. RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	199,000 240,500 323,000 298,000 329,000	1,600 600 1,200 1,600 1,600 1,750	January January January January	April August July April May	Electro-Motive Baldwin-Lima-Hamilton Fairbanks, Morse American
Chicago, Burlington & Quincy	5	AIA-AIA	RdSw. Passenger RdSw.	Diesel-Elec.	259,500 331,513	2,400	June	July	Electro-Motive Electro-Motive Electro-Motive
Chicago, Milwaekee, St. Paul & Pacific.	90 19 53	8-8	RdSw. Switching RdSw. RdSw	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	249,666	1,750 1,600 1,200 1,600	April September September September	September September	Fairbanks, Morse Not specified
Cleveland Union Terminal	2	9-8 8-8 8-8	RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	256,000 248,000 225,000	1,750 1,750 900 1,750	February February November	April March May '55 May May	Electro-Motive
Clinchfield. Delta Valley & Southern. DeQueen & Eastern Florida East Coast.	_ 10	8-8 A1A-A1A 8-8 8-8	Freight Switching Switching Passenger RdSw. Switching	Diesel-Elec. Diesel-Elec.	90,000 230,000 226,000 240,000 248,000	300 900 2,400 1,750	March April September September September	May 1954-55 December 1954-55	Electro-Motive G. ECummins Electro-Motive Electro-Motive Electro-Motive
Georgia Grand Trunk Western Illinois Central	3 15 2 48	8-8 8-8 8-8	Freight RdSw. Passenger RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	245,000 247,000 245,030 253,310 245,000	1,200 1,750 1,750 1,750 1,750	January 1954 1954 March	June August April-lune	Electro-Motive Electro-Motive Electro-Motive Electro-Motive
Jacksonville Terminal Jersey Central Lines Lake Superior & Inheming	7	A1A-A1A 8-8 8-8 C-C 8-8 8-8 8-8	Passenger RdSw. Switching Gen. Purpor RdSw. Switching RdSw.	Diesel-Elec.	332,000 246,000 223,000 375,000 248,000 230,000	2,400 1,750 900 2,400 1,600 1,000 1,200	March-May December April March March March July	April-June 1954-55 June May-June May	Electro-Motive Electro-Motive Electro-Motive Electro-Motive Fairbanks, Morse American
McCloud River Minneapolis, St. Paul & Sault Ste, Marie	1 21	B-B C-C B-B B-B	Freight Freight	Diesel-Elec. Diesel-Elec. Diesel-Flec	224,000 292,000 244,000 249,000	1,200 1,750 1,750 1,750	October	March '55 December December December	American Baldwin-Lima-Hamilton Electro-Motive Electro-Motive
Misseuri-Kansas-Texas	16 4 4 4	8-8 8-8 8-8	Passenger Switching Switching Freight Freight RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	247,000 246,000 242,000 225,000	1,200 1,200 1,000 1,750	October October October October November November	Jan. '55 December December March '55	Electro-Motive Electro-Motive Fairbanks, Marse American Electro-Motive Electro-Motive
Monongahela	26	B-8 8-8 B-III 8-III 8-8	RdSw. RdSw. Switching All Service RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	244,400 244,150 240,000 241,000 232,000	1,750 1,600 1,200 1,600 1,600	November January January January	1955 1955 1954-55 June March	American Baldwin-Lima-Hamilton Baldwin-Lima-Hamilton American
Norfolk & Western	1	6-6-6	Freight	Steam Turbine- Elec.	818,000	****	1954	1954	Baldwin-Lima-Hamilton
Norfolk Southern Northern Pacific Oregon & Northwestern	14 5 1 8 1 6 1	B-II B-B B-B 4 (B-B) 4 (B-B) B-B B-B B-B B-B	All Service RdSw. RdSw. Freight Freight Switching Switching RdSw. All Service	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	290,000 250,000 260,000 996,200 1,000,000 248,000 248,000 260,000 360,000	1,600 1,750 1,750 7,000 7,000 1,200 900 1,600 1,600	December March November June November November November November	March '55 June Feb. '55 October Feb. '55 Feb. '55 Feb. '55 Feb. '55 Feb. '55	Baldwin-Lima-Hamilton Electro-Motive Electro-Motive Electro-Motive Electro-Motive Electro-Motive American American Baldwin-Lima-Hamilton
Port Townsend Prescott & North-Western Raristan River Sterra Southern Pacific	1 6 2 2 4 8 6	8-8 8-8 6-8 8-8 8-8 8-8 8-8 8-8	RdSw. All Service Switching Rd. Sw. Switching Switching Switching Freight Freight	Diesel-Elec.	130,000 140,000 230,000 240,000 240,000 240,000 227,240 254,000	550 600 900 1,200 900 1,750 900 1,750	December March February September November March June September	April June October Feb. '55 April-June April-June June-July OctDec.	Baldwin-Lima-Hamilton Baldwin-Lima-Hamilton G.ECooper-Bess. Electro-Mative Baldwin-Lima-Hamilton Electro-Mative Electro-Mative Electro-Mative Electro-Mative
	15 58 18 4 1 19 4	A1A-A1A C-C C-C B-B C-C B-B B-B B-B B-B	Freight Freight Freight Freight Freight Switching	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	324,800 358,000 360,000 248,000 325,000 138,000 230,000 253,000	9,400 1,750 1,750 1,750 1,800 660 900 1,750	September November November November November November November	OctDec. 1955 1955 1955 Mar. '55 Mar. '55 1955	Electro-Motive Electro-Motive Electro-Motive Electro-Motive American General Electric American
Union Pacific	17	8-8 8-R	Switching RdSw. RdSw. RdSw.	Diesel-Elec.	248,000	1,000 1,750 1,750	November April July	May, '55 June September	American Electro-Motive Electro-Motive
Valdosta Southern	50 I	8-8 8-8 R-R	RdSw. RdSw. RdSw	Diesel-Elec. Diesel-Elec.	140,000		November November	April '55	G. ECooper-Bess. Fairbanks, Morse Fairbanks, Morse
Virginian Wabash Western of Alabama Western Maryland.	2 4	B-B C-C B-B B-B I-B	RdSw. RdSw. Freight RdSw. RdSw. RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	375,000 947,000 940,000	1,600 2,400 1,750 1,750 1,600 1,750	February January March April November	Jan. '55 February June May September Feb. '55	Fairbanks, Morse Electro-Motive Electro-Motive American Electro-Motive
Other Locomotive Orde	ers—F			United Sta	tes				
		aal			Walnut	Horse-	Date of	Date of	
Purchaser Armoo Steel Corp	No. m	ange- ent 3-B 3-B	Service Switching Switching	Type Diesel-Elec. Diesel-Elec.	Weight Lb. 198,500 240,000	800 1,200	Date of Order January November	Date of Delivery January Feb. '55	Builder Baldwin-Lima-Hamilton Baldwin-Lima-Hamilton
Cement Co Babcock & Wilcox Co Bethlehem Steel Co Cadillac-Soo Lumber Co	1	8-8 8-8 8-8	Switching Switching Switching Switching	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	50,000 100,000 140,000 50,000	150 300 380 150	September May August January	November September March '55 February	G. ECummins Baldwin-Lima-Hamilton Baldwin-Lima-Hamilton G. ECummins

OTHER LOCOMOTIVE ORDERS—United States (Continued)

Purchaser .	No.	Wheal Arrange- ment	Service	Туре	Weight Lb,	Horse- power	Date of Order	Date of Delivery	Builder
Cargo Carriers, Inc	1 2 3 1	B-B B-B B-B	Switching RdSw. Switching Switching	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	160,000 140,000 248,000 198,000	470 600 1,200 600	September July May July	November Jan. '55 September July	Baldwin-Lima-Hamilton G. ECooper-Bess. Electro-Motive Electro-Motive
General American Incosporation Corp	1 2 1 1 1 1 6 3 3 1 1 1 1		Switching Switching Switching RdSw. RdSw. Switching Switching Switching Switching Switching Switching Switching Switching Switching Switching	D-Hyd. D-Hyd. D-Hyd. Diesel-Elec. D-Hyd. D-Hyd. D-Hyd.	70,000 60,000 160,000 140,000 50,000 50,000 248,000 70,000 160,000 80,000	300 225 550 600 150 300 150 1,200 150 550 275 470 300	April October January April June November November March June December July May Jene	September Jan. '55 October June October November April '55 June August March '55 March '55 July November September	Baldwin-Lisaa-Hamilton Baldwin-Lisaa-Hamilton G. ECommins G. ECooper-Bees, G. ECooper-Bees, G. ECoumnins G. ECoumnins G. ECoumnins Electro-Motive G. ECoumnins G. ECoumnin
Rockkand Power & Light Co. Sheffield Steel Corp. Tennessee Valley Authority. Texas Co. Transportation Material Command Turner Construction Co. U. S. Gryssem Co. Utah Const. & Stevens Rogers Mfg. Co.	11111111	B	Switching Switching Switching Switching Switching Switching Switching Switching RdSw.	Diesel-Elec.	50,000 160,000 90,000 160,000 246,000 240,000 198,000 88,000 50,000 140,000	225 550 300 550 1,200 1,200 600 400 150 600	December March March February May June April March June May	Feb. '55 July August July November July June Jon. '55 October July	Boldwin-Ling-Plantillon G. ECummins G. ECummins G. ECummins Foisbanks, Morte Baldwin-Ling-Hamilton Electro-Motive G. ECummins G. ECummins G. ECummins G. ECummins G. ECummins
Wheeling Steel Corp.	1	8-8	Switching Switching	Diesel-Elec. Diesel-Elec.	50,000 248,000	1,200	March September	1954 October	G. ECummins Electro-Motive

Locomotive Orders—For Export

Purchaser	No.	Wheel Arrange- ment	Service	Туре	Weight Lb.	Horse-	Date of Order	Date of Delivery	Builder
Armco International Corp.			-						
For Argenting	3	B-B	Switching Switching	Diesel-Elec.	130,000	550 150	October	June '55 March '55	G. ECommins G. ECommins
Central Ramona Sugar Co. (Cuba)	1	В	Switching	D-Hvd.	50,000	225	December	Feb. '55	Baldwin-Lima-Hamilton
Eastern Car Co. (Canada)	1	B-B	Switching	Diesel-Elec.	90,000	300	April	August	G. ECummins
Ferrocariles Consolidados de Cuba.	42	B-B	Road	Diesel-Elec.	156,000	875	June	1954-55	Electro-Motive
F	9	8-8	Road	Diesel-Elec.	156,000	875	June	1954-55	Electro-Motive
Ferrocarril del Pacifico (Mexico)	8	C-C B-B	RdSw.	Diesel-Elec.	300,000	1,600	May	September	American
	- 2	C-C	Road RdSw.	Diesel-Elec. Diesel-Elec.	240,000	1,600	March	May-June	American American
Gaspe Copper Mines (Canada)	9	Car	Switching	Diesel-Elec.	50,000	150	April	October	G. ECummins
Gustave Boel (Belgium)		B.B	Switching	Diesel-Elec.	310,000	480	August	1955	Baldwin-Lima-Hamilton
Canada Cement Co	- 3	B-B	Switching	Diesel-Elec.	90,000	300	lung	November	G .ECummins
	1	B	Switching	Diesel-Elec.	30,000	100	October	April '55	G. ECummins
Canadian Copper Refiners	- 1	В	Switching	Diesel-Elec.	50,000	150	June	June	G. ECummins
Dominican Republic	2	B-B	RdSw.	Diesel-Elec.	140,000	600	May	October	G. ECooper-Bees.
0.10	3	8-8	RdSw.	Diesel-Elec.	140,000	600	June	December	G. ECooper-Bess.
Dutch Guiana	-1	B-B 9-8-9	Switching	Diesel-Elec.	100,000	500	January	October	G. ECommins Baldwin-Lima-Hamilton
India	50	8-8-2	Freight RdSw.	Steam Diesel-Elec.	396,000 168,500	1,310	September September	1955 December	Electro-Motive
Maritrop Trading for Costa Rica	7	B-B	Switching	Diesel-Elec.	130,000	600	February	October	G. ECooper-Bess.
Mexico	7	B-B	RdSw.	Diesel-Elec.	140,000	600	lune	lune	G. ECooper-Bess.
Mexico Cement	9	B-B	Switching	Diesel-Elec.	90,000	300	February	February	G. ECummins
National Steel Car Corp. (Canada)	2	8-B	Switching	Diesel-Elec.	100,000	300	June	September	G. ECummins
Northern Ry. of Costa Rica	4	B-B	Switching	Diesel-Elec.	104,000	450	June	May '55	G. ECater.
Northern Rhodesia	- 2	B-B	Switching	Diesel-Elec.	130,000	550	July	Feb. '55	G. ECommins
Philippine Islands	3	8-8	Rd,-Sw.	Diesel-Elec.	140,000	600	August	December	G. ECooper-Bess.
St. Lawrence Cement (Canada) Tata Iron (India)		B-B B-B	Switching	Diesel-Elec.	90,000	300	une	August	G. ECummins G. ECummins
lata tron (India)	- 2	B-B	Switching Switching	Diesel-Elec.	160,000	550 275	February	August	G. ECommins
		0	Switching	Diesel-Elec.	50,000	150	July	Jan, '55	G. ECummins
U. S. Gypsum Co. (for Canada)	0	B-B	Switching	Diesel-Elec.	90,000	300	June	Jan. 55	G. ECummins
Venezuela State Rys	4	B-B	Switching	Diesel-Elec.	104,000	450	October	March '55	G. ECater.

Canada

Purchaser	No.	Wheel Arrange- ment	Service	Туре	Weight Lb.	Horse- power	Date of Order	Date of Delivery	Builder
British Columbia Electric Ry Canadian National	1 5 26 27 12	B-B A1A B-B B-B B-A1A	Switching Switching Passenger Freight Passenger	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	230,000 175,000 248,000 248,000 295,400	900 875 1,750 1,750 1,600	November March July July August	May '55 July Jan. '55 April '55 1954-55	G. M. Diesel, Ltd. G. M. Diesel, Ltd. G. M. Diesel, Ltd. G. M. Diesel Ltd. Canadian Locomotive
Canadian Pacific	18 23 18 11 21 21 15	B-8 B-8 B-8 B-B B-B	Freight Freight RdSw. Switching RdSw. RdSw. RdSw.	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	248,000 246,100 258,000 230,000 258,000 262,000 259,000	1,600 1,600 1,750 900 1,750 1,600 1,600	August August July July July July July July July	1954 Jan. '55 April '55 Jan. '55 1954-55 NovDec.	Montreal Locomotive G. M. Diesel, Ltd. G. M. Diesel, Ltd. G. M. Diesel, Ltd. Montreal Locomotive Montreal Locomotive
Essex Terminal Ry	14	8-8 8-8 8-8 8-8	Switching Switching Freight Freight	Diesel-Elec. Diesel-Elec. Diesel-Elec. Diesel-Elec.	199,000 230,000 240,000 240,000	660 800 1,600 1,600	May September	1955 February July November	Montreal Locomotive G. M. Diesel, Ltd. Montreal Locomotive Montreal Locomotive
Quebec, North Shore & Labrador	15	B-B	RdSw.	Diesel-Elec.	258,000	1,750	September	June '55	G. M. Diesel, Ltd.

CAR ORDERS

For Service in the United States

Purchaser	No.	Closs	Long'	th	Construction	Seating Capacity	Weight	Date of Order	Date of Delivery	Builder
				2074		Cupucity		1954	1954	Pullmon-Standard
Atlantic Coast Line	3	Coach Shell	**		Steel	**				Budd Budd
Boston & Mains	43	RDC-1	2.0	**	S. Steel S. Steel	••	*****	July	1955	Budd
01 - 0 - 1 - 1 - 1 - 1	12	RDC-2	**		5. Sleel	**	*****	July	1955	Budd
Chicago, Rock Island &	-	P-1-1-8	400		Caral	56	70.000	September		ACE Industries
Pacific	3	Coach*	109	0	Steel	80	70,000	September	*****	ACF Industries ACF Industries
China Tamala Audi ada	70	Coach*	109	0	-	50	40,000	1954	*****	St. Louis Car
Chicago Transit Authority Great Northern	22	Subway	46	0	******		40,000	February	1955	Budd
Jersey Central Lines	XX	Dome Coach RDC-1	85	0	Charl	89	114,452	March	April	Budd
Long Island	22	M-U Coach	82		COMMITTEE IN	120	132,300	October	1955	Pullman-Standard
Long mana	42	M-U Trailer	82		Charl	123	128,000	October	1955	Peliman-Standard
	36	M-U Trailer	82		CHAR	123	107,000	October	1955	Pullman-Standard
	25	Coach	82		CHANGE OF THE PARTY	120	110,000	October	1955	Pullman-Standard
	23	RDC-1		na.	-	107		October	1955	Rudd
		RDC-2		**	*****	84		October	1955	Budd Budd
Louisville & Nashville	12	Cooch	85	0	Steel	60	131,960	August	1955	ACF Industries
Locatine a regardine	4	BaggDorm. Shell		-				November	11755	Pullman-Standard
		buggcom. anen			*****			1 TOTALIOUS	******	T CHILLIAN CHANGE
Missouri-Konsos-Texas	4	Cooch	85	0	Steel	72	131,300	March	May	Pullman-Standard
LATINGS OF TAXABLE AND	-	Couch	85	0	- Steel	64	131,300	October	May-June '55	Pullman-Standard
	1	Coach-Lage-Buffet	85	ŏ	Steel	59	131,300	October	June '55	Pullman-Standard
New York Central	10	Siesta Coach	A STATE OF			40	137,200	May	June '55 Undetermined	Badd
New York City Transit	10	COURSE CORES		**			101/200			
Authority	400	Subway	51	0	Steel	44	78,000	October		St. Louis Cor
Northern Pacific	3	Business Car	85	0	Steel		144,700	January	1955	Pullman-Standard
St. Louis-San Francisco	1	Coach	85	0	Steel	64	131,300	November	1955	Pullman-Standard
011 20010 0011 110100000000000000000000	4	Baggage-Dorm.			Steel		******	November	1954	Pullman-Standard
Southern Pacific	10	Coach	85	0	Steel	145	139,000	June	1955	Pullman-Standard
000111011111111111111111111111111111111	1	Business Car	87	6	Steel		182,000	lune	1955	Pullman-Standard
	4	RDC-1						February	March	Budd
Union Pacific	5	Dome Coach	85	0		44	160,745	February	1955	ACF Industries
	5	Dome Dining	85	0	******	36	169,025	February	1955	ACF Industries
	10	Dome Obs.	85	0		54	160,585	February	1955	ACF Industries
	35	Sleeping	85	0				September	1955	Pullman-Standard
Wabash	3	Sleeping	85	Õ	Aluminum		138,554	November	1955	Pullman-Standard
		-				1				1

*Talgo-type equipment.

Canada

Perchaser	No.	Class	R. Lee	in.	Construction	Seating Capacity	Weight	Date of Order	Date of Delivery	Builder
Canadian National	5	Coach	54	6	Steel	50		June	December	Can, Car & Fdy.
	2	RDC-4	60	0	Steel	**	******	June	Jan. '55 July	Can. Car & Fdy. Budd
	1	RDC-2 RDC-1						October	1955 1955	Budd
	1	RDC-4			*****		******	October	1955	Bedd
Canadian Pacific	1 9	RDC-1	:	**		**	*****	July	March	Budd



| STEAM LOCOMOTIVES | 1954 vs. 1954 vs. 1954 vs. 1952 | 1953 | 1954 vs. 1955 vs. 1954 vs. 1954 vs. 1955 vs. 19

DIESEL-ELECTRIC LOCOMOTIVES

	1942	1953	1954	1934 vs. 1942 Increase	1954 vs. 1953
D					
Passenger	156	1,390	2,333	2,177	943
Freight	52	5,605	11,636	11,584	6,031
Freight or Passenger	20	802	1,095	1,075	293
Switch	1,284	8,374	8,579	7,295	205
Total	4 540	16 174	92.642	00 121	7 470

MOTIVE POWER STATISTICS

FREIGHT SERVICE	9 months ended with September		
Read locomotive-miles (000) (M-211):	1954	1953	
Total, steam Total, steam Total, dissel-electric Total, electric Total, electric Total, locamotive-miles Locamotive-miles (principal and helpse) Grass ton-miles (excluding locamotive and tender) Train-miles Grass ton-miles (excluding locamotive and tender)	56,181 289,284 5,809 352,476 1.02 2,895 18.80 53,779	111,980 279,368 6,572 398,514 1.03 2,882 18.20 51,726	
PASSENGER SERVICE			
Road motive-power miles (000): Steam. Dissel-electric. Electric. Total.	20,995 187,925 12,509 221,432	39,270 181,075 13,803 234,148	
YARD SERVICE			
Freight yard switching locomotive-hours (000): Steam, coal-burning. Steam, cil-burning. Diesel-electric. Total.	2,803 487 29,388 32,760	5,380 979 30,905 37,444	

"The Sunset Limited, one of America's most modern passenger trains, operates between New Orleans and Los Angeles and traverses the legendary Evangeline Country of South Louisiana, the bustling industrial centers of the Gulf Coast region, and the scenic Southwest, land of dude ranches and painted deserts."



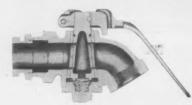


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Air leakage in your train units multiplies into important losses in train make-up time and in air brake efficiency. Now you can stop many sources of this leakage with the Wabcoseal Angle Cock. It's new in 3 ways—

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- 3—a new spring-locking handle for added safety in passenger cars and locomotives that employs a strong spring to snap the socket into a locked position and keeps it there with the handle in fully open or closed position.

AND . . . these important design features can be applied to your present angle cocks. STOP these air leaks now. Let us supply you with all the details on this new Angle Cock.

THE NEW YORK AIR BRAKE CO.

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1954 RAILWAY PURCHASES

	(000)
Equipment*	\$ 311,480
Rail	88,000
Crossties	64,000
Other Material	900,000
Total from Manufacturers	\$1,363,480
Fuel	408,000
Grand Total	\$1,771,480**

^{*}Amount placed on order

CONSTRUCTION PROJECTS

From practically all the large railroads in the United States, Canada and Mexico, Railway Age has obtained brief descriptions of construction and improvement projects, costing \$1,000,000 or more, which were completed during 1954 or were under way at the end of the year. These data are given below. The figures in parentheses indicate percentage of completion at the end of 1954.

Alaska: Relay existing 70-lb rail with 10-lb rail, respace ties, place 62,800 ties, and install 40 turnouts between Seward and Portage, \$4,594,000 (66).

Atchison, Topeka & Santa Fe: Curve reduction, Guthrie, Okla. (100); CTC. Newkirk, Okla. (100); storehouse facilities, Corwith, Ill. (100); freighthouse facilities, Corwith (100); construction new diesel shop, Argentine (Kansas City), Kan. (100); line change and raise of grade, Ellinor, Kan. (100); construction freight apron and slip, China Basin (San Francisco), Cal. (100). (Gulf, Colorado & Santa Fe): Install CTC system between Purcell, Okla. and Red (75); construction of new line approximately 50 miles long from Sangar, Tex., on main line, to a point near Garland, Tex., on line between Cleburne and Paris (begun).

Baltimore & Ohio: Elimination of grade crossing, Hanover and Potee streets, Brooklyn, Md., \$3,200,000 (100). Construction heavy repair shop, DuBois, Pa., \$1,500,000 (100). Yard improvements, Connellsville, Pa., \$1,900,000 (75); change railroad for construction of Penn-Lincoln Parkway, Pittsburgh, Pa., \$4,000,000 (25); reconstruction of bridge over Cuyahoga river, Cleveland, Ohio, \$3,250,000 (20).

Bessemer & Lake Erie: Extend and modernize CTC system Albion, Pa., to North Bessemer, \$1,875,000 (8).

Canadian National: Construction 155-mile new line Beatty-ville, Que., to Chibougamau, \$18,000,000 (contract let); construction 27-mile branch Hillsport, Ont., to Manitouwadge, \$3,-750,000 (contract let); construction of car-shop facilities, including a repair shop, paint shop, extension to a storage building and work equipment shop, Point St. Charles, Montreal, Que., \$4,000,000 (95); construction of facilities for repairing diesel locomotives, including remodeling interior of existing electric locomotive shop, construction of extension to existing locomotive shop, together with installation of 100-bon drop table, 5 crossover bridges, 35-ton overhead electric traveling crane with 10-ton auxiliary, together with sanding facilities, dryers, cleaning equipment and incidental track work, Point St. Charles, \$1,300,000 (80); expansion and improvement of track facilities at Turcot

yard, Montreal, \$2,350,000 (92); construction of freight shed building, a general freight-office building, platforms, teamways and team tracks, to replace facilities destroyed by fire, Montreal, \$7,000,000 (93).

\$7,000,000 (93).

Construction of improvements to Central Station approach facilities, Montreal, including extension of four stub tracks to form through tracks, necessitating removal of five buildings, extension of subtrack area, South Plaza, completion of the west end of Lagauchetiere Street bridge and construction of a double-track span across St. Antoine Street and an additional ladder lead track across the street, \$4,000,000 (91).

Diversion of two main-line passenger tracks and enlargement of ward including installation of said interconsequences.

Diversion of two main-line passenger tracks and enlargement of yard including installation of an intercommunication system, construction of car-repair building and incidental car-repair tracks, platforms, sewers and paving between trackage, Mimico, near Toronto, Ont., \$4,000,000 (99); construction of improvement to grain elevator, Port Arthur, Ont., \$1,500,000 (85); extension to ore dock, Port Arthur, \$3,200,000 (95); installation of CTC on about 106 miles of single track between Atikokan, Ont., and Conmee Jct., on the Kashabowie subdivision, \$2,325,000 (87); construction of a new marshalling yard in parish of St. Laurent, Montreal, \$10,000,000 (12); construction of new express garage and office building, Toronto, \$4,750,000 (35); improvement of yard facilities, Edmundston, N. B., \$1,250,000 (25); construction of 21-story 1,200-room Queen Elizabeth hotel, Montreal, \$20,000,000 (in progress).

Canadian Pacific: Construction 40 miles of branch line and 4.3 miles siding between Struthers, Ont., and Manitouwadge Lake, \$3,300,000 (10); construction 15-mile branch line from Havelock, Ont., to Nephton, \$1,500,000 (80); construction 7-story office building extension to Windsor Station, Montreal, Que., \$2,600,000 (100); construction train ferry slips at Vancouver, B. C., and Nanaimo, \$3,319,000 (75). (Quebec Central): Relocation of 8.23 miles of main track and 4.45 miles of yard tracks, including 24 turnouts, freight shed and other terminal facilities, Thetford Mines, Que., \$2,200,000 (98).

Chesapeake & Ohio: Replacement of steel spans in viaduct, Tredegar Street to Fourteenth Street, and reconstruction of 3 other bridges, Richmond, Va., \$3,381,000 (100); replacement of steel spans in viaduct, Fourteenth Street to Eighteenth Street, Richmond, \$2,216,000 (75); rebuilding bridge on new line, Snowden, Va., \$1,429,000 (100); construction diesel shop, Clifton Forge, Va., \$1,876,925 (100); construction diesel servicing facilities, Huntington, W. Va., Russell, Ky., and on Hocking division, \$2,524,735 (100); car retarder system in eastbound classification yard, Stevens, Ky., \$1,069,000 (95); construction passenger car shop, relocation wheel and axle shop and storage facilities, Huntington, W. Va., \$1,429,350 (94); CTC system and extending crossing tracks, Peru, Ind., to Griffith, \$1,463,200 (100); CTC system and rearranging crossovers, Columbus, Ohio, to Delaware, and Marion to VR tower, \$1,701,300 (45); CTC system and construction 10,345 ft of track, Saginaw, Mich., to Ludington, \$1,200,000 (60).

Chicago & North Western: Construction viaduct over C&NW and IC tracks on Broadway Street, Council Bluffs, Iowa, \$1,600,000 (35); construction bridge on Mannheim Road over Proviso Yards, Proviso, Ill., \$2,210,000 (90); relocation of 6.2 miles of double track around O'Hare (Chicago) International Airport, Proviso to Des Plaines (joint with the Milwaukee and City of Chicago), \$4,000,000 (100).

Chicago, Burlington & Quincy: Construction of freighthouse and rearrangement of yard, Morton Park, Ill., \$4,295,000 (100); grade and line revision between Monroe City, Mo., and Clarence, \$1,177,888 (100); line facilities for continuous cab signaling of locomotives between Chicago and Aurora, \$1,360,525 (75); CTC between Pacific Jct., Nebr., and Lincoln, \$1,445.00 (95).

Chicago, Rock Island & Pacific: Construction 6.6 miles of new line, and remove present main line, Adair, Iowa (100).

Chicago South Shore & South Bend: Construction 4.9 miles of double track in new location, to bypass paved street trackage in East Chicago, Ind., \$2,000,000.

Erie: Construction of track facilities to Ford Motor Company plant, Mahwah, N. J., and Suffern, N. Y. (100).

Florida East Coast: Relaying 112-lb rail with 132-lb rail in 27 miles of single track between Edgewater Jct., Fla., and Titusville, \$1,240,000 (100).

Jersey Central Lines: Grade crossing elimination between Dunellen, N. J., and Plainfield, \$7,000,000 (70).

(New York & Long Branch): Construction of double-track main line on embankment across Matawan Creek valley, including abandonment of existing timber trestle, Matawan, N. J., \$1,185,000 (100).

Kansas City Southern: Construction yard, engine terminal, (Continued on page 179)

^{**}Subject to revision





54.98 keeps a million-dollar

A luxury streamliner roars through the black, rainswept night at 80 miles an hour. Somewhere ahead there's a 40-mile curve. How much advance warning will the engineer have? Suddenly... a yellow flash far ahead... seconds later a legend "40" bright and clear. The throttle goes forward; the brakes take hold. The train eases smoothly and safely into the curve. How? Because the speedboard was reflectorized with "Scotchlite" Sheeting—the brilliant material that's visible at night ½ mile away. Why? Because this

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train on time...and on the track!

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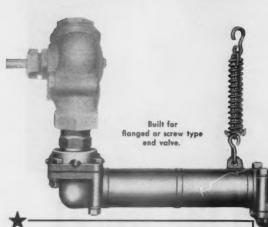
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"We started a test of Barco Connections on our road two years ago. A year later we ordered another sixty and only one has been removed in a year."

WHAT HELPS THE RAILROADS, HELPS AMERICA

CONSTRUCTION PROJECTS

(Continued from page 175)

shop layout and office buildings, at Shreveport, La., \$5,000,000 (50).

Kansas City Terminal: Construction third main track and reconstruction existing trackage between CB&Q's Missouri River bridge and KCT's Kansas River bridge, complete with signaling, interlocking and communication facilities, Kansas City, Mo., \$2,600,000 (20).

Lehigh Valley: Construction new freight and passenger terminal facilities Buffalo, N. Y., \$1,250,000 (20).

Long Island: Elimination of two grade crossings at South Oyster Bay Road and Broadway, Massapequa, N. Y., \$1,842,000 (100); elimination of two grade crossings at Terrace Place and Central avenue, Valley Stream, N. Y., \$3,428,000 (82); construction of a new bridge to carry the Queens-Midtown Expressway under main line, Rego Park, N. Y., \$1,700,000 (43).

Louisville & Nashville: Construction of receiving yard, classification yard, departure yard, and other terminal facilities, Radnor Yard, Nashville, Tenn. \$10,546,600 (99); installation of CTC, including track changes Corbin, Ky., to Etowah, Tenn., \$1,800,000 (80); installation of CTC, including track changes, Corbin, Ky., to Ponza, \$1,500,000 (5); installation of CTC, including track changes, Parkton, Ky., to Montfort Tenn., \$2,800,000 (5); construction bridge over Pearl river, between Louisiana and Missispipi, \$1,000,000 (1); construction freighthouse, Nashville, Tenn., \$1,000,000 (25).

Maine Central (Portland Terminal): Construction new yard tracks and signaling at Portland, Me., \$1,600,000 (100).

McCloud River: Construction branch line approximately 32 miles long from Bear Flat, Cal., to Burney, \$1,500,000 (66).

Missouri-Kansas-Texas: Construction of Garza-Little Elm reservoir on Elm Fork of Trinity river, involving relocation of 4.35 miles of branch-line track, work being done by the federal government, between Garza, Tex., and Lewisville, \$1,241,400 (100).

Missouri Pacific: Raising main track at levee crossings and in unprotected areas, including construction or reconstruction of all fills and bridges, Alton, Ill., to Gale, \$5,555,000 (80).

Nashville, Chattanooga & St. Louis: Construction of 6 miles of freight main tracks to connect existing tracks to new joint freight yard (Radnor Yard) Nashville, Tenn., \$2,460,000 (100); installation CTC for 138 miles including rearranging and extending various passing tracks between Bruceton, Tenn., and Memphis, \$1,350,000 (100).

National Railways of Mexico: Rehabilitation tracks on system, \$3,385,045; ballast on system, \$2,254,419 (100).

New Orleans Union Passenger Terminal: Construction of union passenger station, \$2.250,000; construction of coach yard facilities and installation of signaling and interlocking facilities, more than \$1,000,000 (100).

New York, Chicago & St. Louis: Grade elimination project at Fort Wayne, Ind., \$1,409,158 (9).

New York, New Haven & Hartford: Construction of Market terminal which includes bulk yard facilities, drainage improvements, utilities, driveways, mechanical department facilities and land improvements at Boston, Mass., \$2,000,000 (100); reconstruction steel viaduct with concrete slabs in caissons, Bridgeport, Conn., \$2,550,000 (1).

Norfolk & Western: Construction addition to grain elevator complete with operating machinery, Sewells Point, Va., \$1,000,000 (100); extension of eastbound receiving and forwarding yards including 1.9 miles of 132-lb rail with 10 turnouts, and 13.8 miles of second-hand 131-lb rail with 73 turnouts, installation of signals, floodlights, a track scale, and construction of yard buildings and other facilities, at Bluefield, W. Va., \$2,503,000 (100); construction fireproof engine-service building, 200,000-gal water tank and pipe lines, engine washing and ash handling facilities, wash and locker building, roundhouse, power substation and transmission lines, tracks, paving, etc., at Bluefield, \$1,339,000 (100); construction engine-service building, including watersupply facilities, engine-washing facilities, ash-handling facilities, and other improvements to enginehouse, drop pits, inspection pits, oil house, roadways, tracks, and power lines, Portsmouth, Ohio, \$2,300,000 (100); railway-owned communication system for dispatchers, local and long-distance telephone circuits, telegraph and printers service for entire system, \$1,344,000 (90).

Northern Pacific: Reconstruction of bridge over Columbia river, Pasco, Wash., \$5,500,000 (100); construction automatically controlled retarder yard with accompanying receiving and departure tracks, Pasco, \$5,160,000 (22).

Ogden Union: Construction new trackage, new yard office and

subyard office, installation seven light towers in east yard, six light towers in main yard, pneumatic tube system, radio and paging facilities, and control towers at Ogden, Utah, \$2,470,000 (87).

Pacific Great Eastern: Reconstruction 13 miles of abandoned line and construction 28 miles of new line between North Vancouver, B. C., and Squamish, \$10,000,000 (10); laying 50 trackmiles of new 85-lb rail to replace 60-lb and 70-lb rail on Squamish and Lillooet subdivisions, \$1,664,000 (90).

Pennsylvania: Construction of Philadelphia improvements (Step 1) west of Schuylkill river (100); construction of freight-car repair shop, Hollidaysburg, Pa. (44); construction of scrap dock and reclamation plant, Hollidaysburg (100); passenger terminal improvements, Pittsburgh (63); construction interchange tracks with Canton Railroad at Baltimore, Md. (0); yard development, Conway, Pa. (25); construction additional ore unloader, Philadelphia, Pa., (0). Total approximate cost of these projects, \$95,281,300.

Pennsylvania-Reading Seashore Lines: Elimination of grade crossings on Cooper's Point branch, Camden, N. J., (100).

Quebec, North Shore & Lubrador: Construction railroad 356 miles long between Seven Islands, Que., and Schefferville, Labrador, between \$150,000,000 and \$200,000,000 (road in operation); construction diesel repair shop, including boiler house, shovel repair shop and fuel platform at Seven Islands, \$1,450,000 (90); installation CTC system, including train radio and telephone, from Seven Islands to Schefferville, \$1,500,000 (90); ballast 468 "lift" miles of 132-lb track, \$1,600,000 (100).

Reading: Construction new low-grade freight line between West Reading, Pa., and Blandon, \$2,225,000 (25); reconstruction of bridges and installation of new signal controls on the Reading Belt branch, Reading, Pa., \$3,350,000 (77); modernization yard facilities, Reading \$1,285,500 (6).

Sacramento Northern: Rebuilding Arcade trestle, replacement Riverview trestle with fill, between Arcade, Cal., and Riverview, \$1,400,000 (100).

St. Louis-San Francisco: Construction new terminal office, rearrangement of train yard, modernized rip yard, retiring old mechanical facilities, construction modern diesel facilities, Kansas City, Mo., \$2,400,000 (40); CTC and extending various sidings between Nash, Mo., and Turrell, Ark., \$1,049,520 (10).

St. Louis Southwestern: Construction general office building, Tyler, Tex., \$1,425,000 (80).

Seaboard Air Line: Construction retarder and classification yard, Hamlet, N. C., \$6,110,000 (100); construction diesel shop and related facilities, Hamlet, \$1,410,000 (100).

Southern: Extending Citico yard and construction connection track, Chattanooga, Tenn., \$13,800,000 (75); rebuilding Wabash River bridge on off-line location, Mt. Carmel, Ill., \$1,311,000 (40).

Southern Pacific: Installation of CTC on 96 miles of main track, extending 11 sidings, retiring 3 sidings between Crescent Lake, Ore., and Eugene, \$3,684,250 (97). (Texas & New Orleans) Converting Englewood freight terminal into gravity switching yard by constructing 254,351 track-feet of additional track, hump structure and embankment for crest of gravity yard, providing car-retarder system, including power-operated switches and automatic switch and speed control, Houston, Tex., \$5,464,000 (60).

Spokane, Portland & Seattle: Construction 1.5 million-bushel reinforced-concrete grain elevator consisting of work house; installation of car dumper; 750,000-bu capacity lean-to to be added upon completion of the bins for bulk storage of grain, Vancouver, Wash., \$1,850,000 (100).

Union Pacific: Replacement of 16.50 miles of double-track main line, 6.13 miles of single-track main line and 0.12 miles of Grass Valley branch main track with 16.03 miles of double-track main line, 6.64 miles of single-track main line and 0.56 mile of branch main track in new location, required in connection with the construction of Dalles dam by U. S. Government, between. The Dalles, Ore., and Hook, \$7,713,1778 (45; construction vehicular and pedestrian subway at Sycamore street, retiring existing grade crossing, Grand Island, Nebr., \$1,088,650 (100).

Construction diesel repair and servicing facilities, including rearrangement and construction of additional yard tracks, Salt Lake

Construction diesel repair and servicing facilities, including rearrangement and construction of additional yard tracks, Salt Lake City, Utah, \$4,781,000 (100); construction additional diesel-locomotive facilities including more trackage, a crew dispatcher's office and a locker building, Los Angeles, Cal., \$1,360,800 (100); installation automatic cab-controlling circuits on both main lines and four-indication wayside signals between Green River, Wyo., and Ogen, Utah, \$1,100,000 (100); replacing semaphore signals with color-light signals and rearrangement side tracks at various locations between Hinkle, Ore., and The Dalles, \$1,249,100 (100); construction new locomotive and car servicing and repair facilities, (Continued on page 182)



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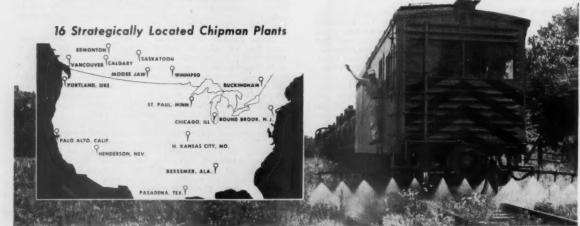
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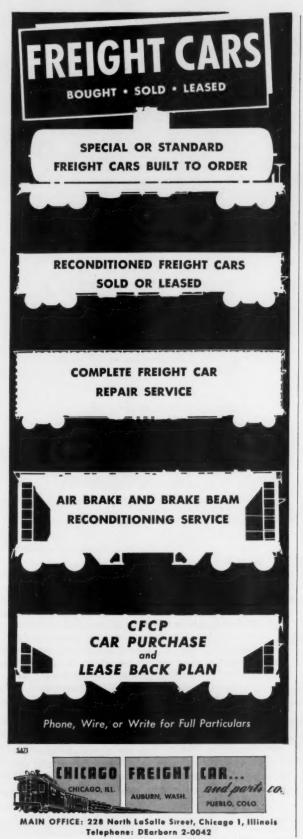
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CONSTRUCTION PROJECTS

(Continued from page 179)

61,300 ft of new trackage and yard office, replacing existing shop facilities, East Spokane, Wash., \$2,103,090 (65); construction new eastbound freight yard north of the main tracks and rearrangement northerly tracks at Seventh street, Kansas City, Kan., \$3,776,798 (100); replacement semaphore with color-light signals, respacing signals and shifting side tracks to 19-ft centers, Julesburg, Colo., to LaSalle, \$1,363,947 (100); respacing signals, replacing semaphores with color-light signals, staggered signals at headblocks, and extending passing tracks, Glenns Ferry, Ida., to Huntington, Ore., \$2,734,905 (100).

Union Ruilroad: Construction 9-track receiving yard, capacity 463 cars, 8-track stub-end southbound yard, capacity 129 cars, and 24-track classification hump yard, capacity 828 cars, with one master retarder and three group retarders, one 92-ft track scale for motion weighing, automatic remote-control switching and relocation of three main tracks at Duquesne (Pittsburgh), Pa., \$4,250,000 (98).

Western Pacific: Replacement 5,131 ft of timber lining with concrete lining in two main-track tunnels between Chilcoot, Cal., and Niles, \$2,000,000 (90); construction new yard, pipe lines roadways and miscellaneous mechanical and other facilities to serve Ford Motor Company at Milpitas, Cal., \$1,200,000 (100).

MOTIVE POWER OUTLOOK

(Continued from page 141)

The possibility of an atomic locomotive has generated two schools of thought—one that it should be a self-contained unit, and the other that power should be generated in stationary power plants and supplied to electric locomotives by an overhead electric contact system. Those who favor the latter means should know that while it appears that the cost of atomic fuel may be brought within competitive values, the present cost of a stationary atomic power plant must be at least four times that of a conventional coal-burning steam power plant.

When, as and if stationary atomic power plants do produce power in quantity, they will probably feed into power systems but will have little effect on the price of power to the consumer.

It was for this reason that the design of the atomic locomotive, described in Railway Age June 14, 1954, was created. It was felt that if the special benefits of nuclear reactors are to be realized, it will be because ways and means will be found in which they will meet particular requirements. Few engineers expect to see such a locomotive within ten or fifteen years, if at all, but neither will any say it can't be done.

Competition for the diesel, of greater potential than that of the atomic locomotive, is straight electrification. As the price of liquid fuel advances, the power industry has kept the cost of electric power relatively constant. Adding to the advantages of electrification is the development of the rectifier type of locomotive which can avail itself of the advantages of d-c traction motors-now produced in quantity-and take power from an overhead system supplied with power at commercial frequencies. With these advantages, it has been shown in studies of specific applications that electric operation will show an overall saving of 10 per cent as compared with diesel power. Any investment of railroad money must do better than this, particularly in the case of so long a term of investment. However, the trend is at present in this direction and considerations of future motive power developments should not lose sight of the potentials involved.

Benchmarks and Yardsticks

PERHAPS THE GREATEST improvement that people could make in their relationships with each other would be to quit considering their temptations to friendliness and benevolence as, somehow, rather impractical and "unbusinesslike."

A century and three quarters ago Adam Smith made it clear that, under a regime of thoroughgoing competition, the public was not dependent for its supply of meat upon the butcher's altruism—but on his concern for his own welfare. Self-interest was, and still is, a powerful and legitimate incentive to effective economic action, but Adam Smith did not insist, for that reason, that a measure of unselfishness was shameful. And, the fact is, widespread competition exerts far less "police power" over greediness than it did in Adam Smith's day; because, with mass production of so many products, the number of suppliers of many of them is today too few to provide effective competition in the old sense of the word.

In short, to make today's political and economic system work effectively, a lot more downright goodwill is needed than ever before in history. For the manager of a business or a labor leader or a bureaucrat to betray some generosity and sympathy for other people—when not forced to do so—is, therefore, not evidence of weakness or impracticality, but of great wisdom and insight.

The interpreter of history, Arnold Toynbee, recently observed that the great increase in material power that one man or small group of men can wield today "has not made wickedness more wicked, nor righteousness more righteous, than they have always been. But it has made the practical consequences of human conduct immensely more serious than they have been in the past."

Fifty years ago a citizen could be relatively safe, even in a community of neighbors inclined to mischief. No one or two employers had control of practically all the available jobs in the area. Retail trade was not largely concentrated in a couple of supermarkets. The citizen was not dependent for light and power on one central station. If the government tried to oppress the citizen, the gun over his door with which he could defend himself was just as powerful as any available to the police.

So it isn't "impractical" and shameful for every citizen to do all he can to build up an atmosphere of courtesy and goodwill—by behaving that way himself whenever he has the opportunity. Providence—which for two thousand years has tried to induce men to exercise moral restraint and to love one another, without hope of immediate reward—now seems to have concluded that we are too slow to learn, and has made the development of a considerable degree of altruism a condition of human survival.

J.G.L.



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mended for use in locations where severe tie wear prevails and is particularly economical when used on expensive railroad ties or bridge timbers. It is a rubber-fibre compound, molded under heat and pressure, possessing a high tensile strength and capable of maintaining its physical properties under heavy traffic loads - yet is sufficiently flexible to adapt itself to the irregular surfaces of ties. ALL RACOR TIE PADS are coated with a special sealing compound that seals the pad to the tie, providing maximum protection by preventing the entrance of moisture and abrasives that accelerate the early deterioration of the tie. The RACOR pad also contains a fungicide which prevents the deterioration of the pad. Intensive research and many years of experience in manufacturing this type of product has given us the "know-how" to produce a material of the very highest quality at the lowest cost.

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The low price of the RACOR TIE PAD permits its economical use where all such applications are made.

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FOOD SERVICE EQUIPMENT

Financial

(Continued from page 16)

itself the Muskegon Railway & Navigation Co., a wholly owned subsidiary. The purchase price would be \$655,498.

Longview, Portland & Northern.—Merger of Willamina & Grand Ronde.—The ICC has authorized merger of the W&GR into the LP&N. The W&GR has operated 9 miles of road between Willamina, Ore., and Grand Ronde, and 3.5 miles between Gardiner Junction and Gardiner. The LP&N operates as a switching agency for trunk lines at Longview. All properties and franchises of W&GR will be merged into the LP&N and its corporate existence will be terminated. Both roads are controlled by the Long-Bell Lumber Company. The lumber company and its parent companies, Long-Bell Lumber Corporation and R. A. Long Properties, have been authorized by the ICC to acquire control of the surviving road through stock ownership.

Sacramento Northern.—Trackage Rights.—This road has asked the ICC for authority to acquire trackage rights over the Western Pacific to provide connections at the SN's Heggen yard at Sacramento. The SN proposes to abandon a 400-ft spur from the yard to allow the California Almond Growers Exchange to expand its adjacent plant. CAGE will pay the SN \$14,500

PRIVATE CAR BECOMES MUSEUM PIECE

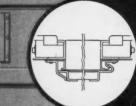
"The Gold Coast," one of the last privately owned railway cars in the United States, has been donated to the West Coast equipment collection of the Railway & Locomotive Historical Society. The car, built at the Savannah shops of the Central of Georgia in 1907, has been owned since 1946 by Lucius Beebe and Charles Clegg, eoauthors of a number of books on railroading and western Americana.

The car was accepted on behalf of the society by Gilbert H. Kneiss, resident vice-president and assistant to president of the Western Pacific, who termed it "irreplaceable at any price as a period piece dating from the most ornate age of American railroading." The widely publicized car will be housed with other pieces of the so-ciety's collection at Oakland or Stockton under care of the WP. The deed of gift accompanying the car provides for its use as an historical conveyance for pageants, anniversaries and civic occasions by either the WP, the Southern Pacific or the Santa Fe. Last year the car took part in the WP's golden anniversary celebration (Railway Age, March 16, 1953, page 13).

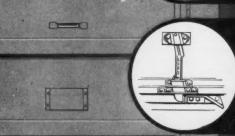
R DOOR



BALL BEARINGS provide easy operation



BAFFLE DESIGN prevents damage to lading



WEDGE DESIGN keeps door tightly closed



All edges baffled against rain, snow and cinders

SUPERIOR DOORS ROLL EASILY . LOCK TIGHTLY

UPERIOR

SIGNALING INSTALLATIONS

(Continued from page 137)

checkers, mounted along running rails, were installed last year by the Atlantic Coast Line and the Quebec, North Shore & Labrador, and an installation on the Chesapeake & Ohio is nearing completion. This device will detect a break where the missing portion of the flange runs continuously for $3\frac{1}{2}$ inches of the circumference within $\frac{1}{2}$ inch of the tread. These wheel-checker devices are designed for use on yard leads or on main track where speeds do not exceed about 20 mph.

Looking to the future, some of the circuits and electronic equipment in the present wheel checkers may be applied in a system using infrared rays to detect hot

boxes as cars pass.

A power-operated paint marker was developed in 1954 as an accessory to be used with wheel checkers. When a defective wheel is detected, a motor-driven pump squirts non-drying yellow paint on the wheel, thus saving time in locating it. This pump marker could also be used with dragging-equipment detectors, because as much as 30 minutes can be lost checking a train for defective equipment that has actuated a detector.

In 1954, railroads installed better protection at many crossings, and at the same time effected reductions in expenses. The protection afforded by automatically controlled crossing gates with flashing lights is better; they are in service 24 hours every day; and are more reliable than watchmen or manually operated gates.

PASSENGER CARS

(Continued from page 131)

Now it appears that at least three of these railroads, the established passenger-car builders, and at least two organizations that have not been passenger-car builders, are all going it independently with the promise that at least three, and perhaps four, new lightweight trains, all different, will be in service or on order before the end of 1955.

The Defense Transport Administration and the Office of Defense Mobilization have been seriously concerned with the maintenance of an adequate supply of railway rolling stock to meet the defense needs of the nation should an emergency arise. To further this objective the ODM set a goal of 1,250 sleeping cars, coaches, chair cars, diners and self-propelled units to which accelerated amortization is extended if work is started on them before July 1, 1955. At the same time a program was under development to place the rolling stock retired by the new cars in a "moth-ball" fleet for use in a national emergency.

So, as 1955 opens, the railroads find themselves with a low ownership of passenger rolling stock. Meanwhile the idea of departing from conventional standards of rolling stock in the interest of reducing weight and first cost has taken hold and, in a situation where the present passenger-car building industry is in a very unhealthy condition because of lack of business, new competitors seem anxious to enter the field.



Fits 5 Makes of freight car brakes. Reduces inventory: costs less. Used by leading roads.

CORLEY CO., Inc. 1 Exchange Pl. Jersey City, N. J.

Financial

(Continued from page 184) for the property containing this spur and will pay up to \$42,800 to the WP for construction of a new spur. The SN would acquire trackage rights over this new spur and the WP line paralleling the yard, a total of 4,000 ft.

Wisconsin Central. — Purchase of Gogebic. — The ICC has authorized the Wisconsin Central to purchase the Gogebic & Montreal River for which it will surrender for cancellation all 6,000 shares of Gogebic capital stock which it now holds.

Supply Trade

Harold M. Aitkenhead, sales agent of ACF Industries, Inc., at St. Louis, has been appointed district sales manager there.

Thomas J. Kehane, assistant vicepresident and general sales manager of Worthington Corporation, has been appointed vice-president, sales, succeeding Walther H. Feldmann, who is now executive vice-president. William A. Meiter, central sales manager, has been promoted to general sales man-

D. E. Lally, assistant general sales manager of Elastic Stop Nut Corporation of America, has been named general sales manager, succeeding E. F. Nason, who has been made administrative assistant.

Consolidated Machine Tool Corporation, a wholly owned subsidiary of Farrel-Birmingham Company, has been dissolved as a separate corporation and is now a division of the parent company.

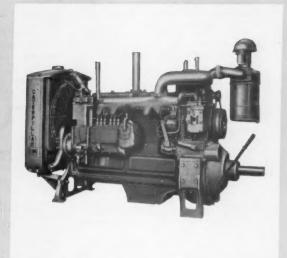
R. B. Crean has been elected president of Reflectal Corporation, a subsidiary of Borg-Warner Corporation. He is vice-president and assistant general manager of several divisions of Borg-Warner.

Floyd R. Rogers, a former railroad employee, has joined the railroad sales department of Wyandotte Chemicals Corporation, with headquarters in O'Fallon, Ill.

Douglas Wallace, district manager of Graybar Electric Company at Pittsburgh, has been appointed assistant vice-president at New York. To succeed him, J. E. Carroll has been transferred as district manager from Cincinnati; E. R. Yonkers has been transferred from Detroit to Cincinnati; and H. G. Cook has been promoted



The OFF-TRACK ENGINE can be a MONEY-MAKER, too



The engines that power your excavators are just as important to your balance sheet as those in your locomotives.

The Santa Fe, for instance, needs dependable, steady power in the American Hoist & Derrick dragline pictured. This unit is used for important work: rebuilding and restoring shoulders, cleaning cuts, cleaning bridge channels and improving drainage.

It's important that this dragline work at its many jobs steadily and without fail. That's why Santa Fe chose Caterpillar power. A heavy-duty CAT* D318 is keeping the dragline swinging.

Here's how a Cat Diesel helps to slash costs. First of all, you can depend on it to be available—some have been on the job for 100,000 productive hours. Secondly, it enables your operators to turn out good jobs easily. Maintenance is simple and there are no field adjustments to make. A Caterpillar-built governor meters out only enough fuel to do the job. The operator has an instant-response governor action for load changes so

that he can get more work done at the lowest cost.

And finally, you don't have to tie up capital in parts inventory. There are hundreds of Caterpillar Dealer stores throughout the nation always ready to give quick, efficient service wherever your equipment may be.

So when it's time to repower see your Caterpillar Dealer. He can show you 12 sizes of diesels up to 500 HP. And remember to specify Cat Engines when you buy new equipment. Leading manufacturers of excavators and other railroad equipment can supply them.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*





NILEY D. BAILEY, who has been appointed manager of railroad sales Ex-Cell-O Corporation, has been associated with the railroad division of the company since 1944.

from manager at Grand Rapids to district manager at Detroit. V. R. Young, manager at Fort Worth, has been promoted to district sales man-ager at Dallas. F. H. Coogan has been appointed traffic manager at New York, succeeding W. R. Wheeler, retired.

OBITUARY

Carl D. A. Henze, 68, western manager of General Railway Signal Company at Chicago, died December

Equipment & Supplies

SIGNALING

Directors of the New Haven have authorized an expenditure of approximately \$1 million for new signaling on the road's main line between Cranston, R. I., and Boston.

The program calls for installation of cab signals (\$750,000) and replacement of existing semaphore signals with color-light signals (\$250,000).

FREIGHT CARS

Directors of the New Haven have authorized a rebuilding program for 1,000 box cars, built in 1941, to ex-tend the life of the cars, in Class A service, by eight years.

The Western Pacific has ordered from the National Motor Bearing Company, Redwood City, Cal., material to equip 500 freight cars with the new journal bearing lubricating system developed by National Motor Bearing, as described in Railway Age December

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Fresno 2-4/75 * B. R. Cale
Long Beach 13 — 800 West 16th Street
Long Beach 13 — 800 West 16th Street
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*Los Angeles 54 — 210 Anderson Street
Angelus 3-7282 * C. V. Kelly
Ockland 7 — 1911 Union Street
Glencourt 1-5451 * M. L. Wilkins
*Sacramento 1 — 1900 14th Street
Gibert 2-8976 * J. M. Dundon
Son Benardino — 655 H Street
* J. H. Gregerson
San Diego 1 — 720 State Street
Belmont 3-1361 * R. T. Redfield
*San Francisco 1 — 1750 Alamedo Street
Market 1-5131 * O. W. Balser
Sonta Ana — 301 French Street

COLORADO

*Denver 4 — 104 Wazee Market Tabor 7116 * H. E. Woodring

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Wilmington 3 — 1005-1007 W. Fourth Street Wilmington 4-6245 ° L. E. McIntyre

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Jacksonville 1 — 12th & Main Streets
Jacksonville 6-7611 ° D. E. Dodamead
R. L. Griffin
Miami 42 — 2111 North West 22nd Avenue
Miami 9-1614 ° J. E. Powell
Orlando — 400 Pittman Street
Orlando 6133 ° N. W. Upson
St. Petersburg 3 — 1900 First Ave. South.
7-4161-2 ° R. L. Munro
Tampa 1 — 416 Ellomee Street
Tampa 2-7791 ° A. P. Torres

*Atlanta 1 — 333 North Ave., N. W. Cypress 1751 • W. C. Brown *Savannah 1 — 2601 Whitaker Street Savannah 2-1121 • L. L. Black

Boise — 14th & Idaho Sts.

Boise 6315 • L. Maynard Smith

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Canal 6-4100 * E. J. O'Donnell
F. D. Wilson

**Peoria 2 — 704 South Adoms Street
Peoria 4-8211 * W. W. Smilde

**Springfield 8-405 North McArthur Blvd.

Springfield 8-4084 * H. Bryson

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Evansville 6-1357 • N. S. Muse
Hammond - 6445 Indianapolis Bitvd.
Sheffield 5830 • D. E. Clisbee
*Indianapolis 2 — 1300 W. 16th St.
Atlantic 2351 • R. W. Nelson

Dovenport — 206-210 East 5th St.
Dovenport 3-2769 • J. M. Ferguson
Des Moines 9 — 24 Eleventh Street
Des Moines 3-8614 • L. C. Esthus
Sieux City — 510 Pearl St.
Sieux City 5-0189 • E. A. Bartlett

KANSAS

Wichita 1 — 424 No. Rock Island Ave. Wichita 7-1366

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*Louisville 8 — 624-628 Myrtle St. Calhoun 5411 • T. E. Mahan LOUISIANA

LUUISIANA
Baton Rouge — 2442 Ted Dunham Ave.
Baton Rouge 4-7093 * S. M. Lawrason
New Orleans 13 — 1116 Magnolia St.
Canal 6263 * A. W. Wheeler
Shreveport - 90 Fannin Street
Shreveport 4-6645 * E. F. Benning

*Portland 3 — Center & Commercial Portland 3-1761 • H. J. Scully

*Baltimore 2 — 100 South Street Saratoga 5050 • J. D. Rhoads

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*Detroit 1 — 15045 Hamilton Ave.
Townsend 8-5550 * C. R. Carlson

*Flint 6 — 2424 Kansas Ave.
Flint 2-4101 * W. A. Arthur

*Grand Rapids 2 — 432 Monroe Ave., N. W.
Glendale 1-2561 * H. G. Cook
Lansing 10 — 421 E. Elim Street
Lansing 4-5434 * W. T. Bronson

MINKESOTA

Minnepoul 2 — 320 West 1st Street
Melrose 6645 • E. W. Windahl
Minnepolis 15 — 824 South Fourth St.
Geneva 1621 • D. J. Keefe

*St. Paul 4W — 717 North Prior Ave.
Nestor 2631 • F. A. Sjøgren

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Baltimore 1644 • E. H. Williamson
E. L. Schott

*St. Louis 3 — 2642 Washington Ave.
Jefferson 1-4700 • J. R. Hayes

Springfield — 524 St. Louis 57.

Springfield 2-0587 • R. L. Shuck

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Charter 7-9375 * W. G. Trometter

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Albany 5-1564 * L. F. X. Bass
Binghamton — 603 Press Bidg.
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Binghamton 2-5926 * M. E. Ransom
Buffalo 4 — 180 Perry Street
Washington 3700 * K. L. Thielscher
*New York City — 21-15 Bridge Plaza North
Long Island City
Exeter 2-2000 * W. C. Lieneck
Rochester 4 — 186 North Water St.
Baker 7700 * M. G. Linder
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Asheville 3-4761 * A. A. Wilson
*Charlotte 1 - 120 W. Morehead St.
Charlotte 6-4886 * A. A. Wilson
Durham - 303 South Duke Street
Durham F-113 * M. C. Shorey
Rocky Mount 3 - 761 Planters Street
Rocky Mount 2-5171 * L. A. Shaw
Winston-Salem 1 - 955-59 Brockstown Ave.
Winston-Salem 4-2461 * J. W. Van Dorsten

OHIO
Akron 9 — 185 Carroll St.
Jefferson 4-4143 ° E. I. Funk

°Cincinnati 14 — 115-129 W. McMicken Ave.
Main 0600 ° L. J. Morrissey

°Cleveland 14 — 1010 Rockwell Ave.
Cherry 1-1360 ° A. C. Schwager
Columbus 15 — Third & Chestnut Sts.
Fletcher 4811 ° T. E. Mahan
Dayton 2 — 332-42 West Monument Ave.
Michigan 5655 ° A. J. Fischer
Portsmouth — 923 Washington Street
Portsmouth 2-3631 ° J. T. Young
Toledo 2 — 1700 Conlon Street
Main 9166 ° E. N. Cundiff
Youngstown 1 — 602 West Rayen Ave.
Youngstown 1 — 602 West Rayen Ave.
Youngstown 4-0124 ° J. T. Baker

Oklahoma City — 12 E. California St.
Oklahoma City 3-9351 • J. L. Ringwall
sta 4 — 2406 E. 12th St.
Tuisa 6-1151 • F. L. Cummings

OREGON

Eugene — 2180 6th Ave. West
Eugene 4-2224 • H. O. Colburn

*Portland 9 — Park & Flanders Sts.

Broadway 6641 • Marvin Peck

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Allentown — 1941 Hamilton Street Allentown 4-9341 Bethlehem 1-0657 • W. L. Hall

Harrisburg — 1039 S. Thirteenth St. Harrisburg 5-7303 ° W. H. Naudesch "Philadelphia 7 — 910 Cherry St. Walnut 2-5405 ° T. E. Laughlin D. M. Antrim "Pirtsburgh 12 — 900 Ridge Ave. Allegheny 1-4100 ° P. Fitzarca N. Drake

Reading — 22 South Third Street
Reading 6-1581 • J. W. Riddell

RHODE ISLAND

Providence 3 — 194-196 Richmond St. Dexter 1-8100 • R. B. Buffinton

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Columbia — 710 Lady St.
Columbia 2-2125 • J. H. Littleton, Jr.

SOUTH DAKOTA

Sioux Falls - 300 N. Phillips Ave. Sioux Falls 4-5621 • R. K. Jenson

TENNESSEE

**Pristol - 536 Anderson Street

South 4415 * R. L. Coward

J. R. Crang

**Chattanooga 4 - 210 N. Highland Park Ave.
Chattanooga 5-524 * J. R. Feeney
Knoxville 30 - Henley 51. & Union Ave.
Knoxville 3-617 * W. B. Owens

Mamphis 3-645 South Front Street Memphis 3 — 484 South Front Street Memphis 37-3421 • W. J. Berry *Nashville 3 — 125 16th Ave. No. Nashville 6-7161 • Herschel Hall

Abilene — 1601 South Treadway
Abilene 2-2861 * E. L. Preston

*Amarillo — 601 E. 2nd Ave.
Amarillo 12-6778 * S. S. Rutledge
Austin — 214 E. 3rd Street
Austin — 1214 E. 3rd Street
Austin — 1070 Fannin Street
Beaument — 1070 Fannin Street
Beaument 2-8484 * L. A. Heley
Corpus Christi — 1311 Agnes Street
Corpus Christi — 1311 Agnes Street
Corpus Christi — 1311 Agnes Street
Corpus Christi — 1374 * R. E. Breyles

*Dallas 1 — 717 Latimer St.
Randolph 6454 * E. E. Reynolds
El Paso — 427 West San Antonic St.
El Paso 3-7561 * C. Newbill

*Fort Worth 7 — 1107 Foch St.
Edison 4523 * Vernon Young

*Houston 3 — 1702 Cullen Blvd.
At Newod 8-4571 * G. H. Simpson
San Antonic 8 — 1401 N. Hackberry St.
Fonnin 6274 * J. Emmett House

Salt Lake City 13 — 336 N. 3rd West St. Salt Lake City 9-8871 • R. H. Lee

VIRGINIA

*Norfolk 1 — 333 West 21st Street Norfolk 2-2727 • John Horne T. A. Young *Richmond 19 — 10 S. 6th St. Richmond 7-3491 • E. C. Toms *Roanoke 5 — 601 Salem Ave. Roanoke 3-3615 * W. C. John

WASHINGTON

**Saattle 4 — King & Occidental Sts. Mutual 0123 * E. C. McEachron Spokane 8 — 152 South Post Str. Riverside 3151 * W. A. Sparks *Tacoma 1 — 2112 A Street Main 0166 * R. J. Franzen

WEST VIRGINIA

Charleston - 600 Chamber of Commerce Bldg. Charleston 6-0411 • J. S. Wilkin

WISCONSIN

WISCONSIN
Green Bay — 1140 North Irwin Avenue
Howard 5600 * Jehn Peterson
Madison 5 - 103 North Park Street
Madison 5-0005 * F. B. Reynolds
Milwaukee 2 — 180 N. Jefferson St.
Marquette 8-1946 * Sam Cook

6, page 3, and December 13, page 10. The WP cars will be the first cars for interchange service to be equipped with the new lubricating device since its application on 10,000 interchange freight cars was approved by the Association of American Railroads last November 30. Installation of the WP order is to begin about February 15.

Organizations

Donald M. Morewood, assistant vicepresident-traffic, United States Steel Corporation, will be the speaker at the luncheon meeting to be held in connection with the Atlantic States Shippers Advisory Board meeting in the Bellevue-Stratford Hotel, Philadelphia, January 20. His topic: "The Uncommon Freight Car."

The Transportation Club of the Rochester Chamber of Commerce will hold its annual dinner February 3, in the Chamber of Commerce banquet hall. Speaker will be Robert W. Sarnoff, executive vice-president, National Broadcasting Company. New officers will be installed, as follows: C. W. Casey, C&M Forwarding Co., president; Roger C. Avery, Neisner Brothers, first vice-president, and George L. Cutaiar, Mushroom Transportation Company, second vice-president.

New Facilities

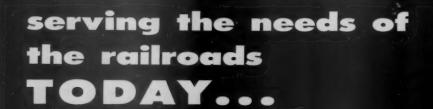
Atchison, Topeka & Santa Fe.-The Panhandle & Santa Fe and Kansas City, Mexico & Orient, both subsidiaries of the AT&SF, have filed a joint application with the ICC seeking to construct a spur between Maryneal, Tex., and Silver, 19.7 miles. The spur would serve a new plant of the Texas Natural Gas Corporation at Silver. Under terms of the application, the Orient would construct the spur from the connection with its line at Maryneal, using funds to be supplied by the Santa Fe. The Panhandle would operate the line, as it does all Orient's other lines in Texas.

Atlantic Coast Line .- Division 4 has found that public convenience and necessity require construction by this road of a 5.5-mile line to serve a growing industrial section in Fulton county, Ga. The certificate authorizing the construction was withheld pending acceptance by the ACL of a condition imposed by the ICC to grant trackage rights to the Southern to allow that road to serve the area should public convenience and necessity be found to require it. The (Continued on page 192)

*At these locations, there are Graybar Representatives who have special experience in handling railroad electrical requirements.



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If you have not received your copy please address Atchison, Kansas, offices.





Door coils above the opening, completely out of the way.

Clears the entire opening — jamb to jamb, floor to lintel.

Opened door stays out of reach of wind or vehicles.

All surrounding floor and wall space is always fully usable.

Rugged all-steel curtain repels wind, fire, theft, vandalism.

Heavily galvanized curtain gives lasting resistance to elements.

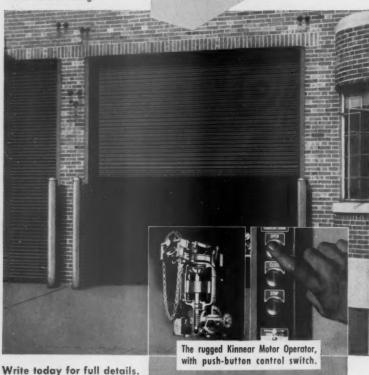
(1.25 ounces of pure zinc per square foot of metal, as per ASTM standards.) Kinnear Paint Bond — a hot phosphate immersion assures thorough, lasting paint grip.

Smooth, easy coiling upward action saves time and labor.

Ideal for motor operation; remote control switches if desired.

Any size; quickly, easily installed in old or new building.

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KINNEAR
ROLLING DOORS

1742 Yosemite Avenue San Francisco 24, Calif.

New Facilities

(Continued from page 189)

Southern had filed with the ICC a counter-proposal seeking authorization to construct its own line to serve the area and the ACL rejected a subsequent recommendation by the commission that a joint ownership plan be worked out by the two roads.

Bessemer & Lake Erie.—This road has asked the ICC for authority to extend its line 1.79 miles to connect with the Conneaut Yard track at Lakeville, Ohio, and for authority to operate under trackage rights over the Pittsburgh & Conneaut Dock line in order to provide service to the United States Steel ore storage pile at Lakeville.

Canadian National.—Elevator contract for this road's new Montreal hotel, the Queen Elizabeth (Railway Age, September 6, page 62, and July 12, page 15), has been awarded to Otis Elevator Company, Hamilton, Ont. The hotel, it is said, will be the largest in the British Empire.

Canadian Pacific. — Operation of the new 17-mile, \$1,500,000 spur line north from Havelock, Ont., into the American Nepheline, Ltd., mine at Nephton, Ont., has just begun. The line, building since last May, is part of approximately 60 miles of spur lines either put into service or started in the past 12 months by the CPR to serve industrial and mine sites in Eastern Canada.

Construction of the spur required removal of 235,000 cu yd of earth and 170,000 cu yd of rock. More than five miles of swamp were channelled and filled with rock, and six miles of rock cuts were opened. Rail laying was carried out with a high percentage of mechanized equipment, including a device which allowed the diesel crane putting down rails to operate over the track as soon as it was laid and before it had either been bolted together or spiked to ties.

Kansas City Southern.—The ICC has authorized the Louisiana & Arkansas, a KCS subsidiary, to construct and operate a 16.48-mile extension to its main line from Fox, Tex., to its connection with the KCS at Blanchard, La. The commission also authorized operation under trackage rights over the KCS from Blanchard to Shreveport, 5.99 miles, to complete this portion of a "cutoff" from Dallas to New Orleans (Railway Age, September 14, 1953, page 15).

tember 14, 1953, page 15).

The Fox-Shreveport "cutoff" link would replace the L&A's present route between the two cities, which includes 13.81 miles of its own track from Fox to the Texas-Louisiana line and from there to Shreveport, 20 miles of Illinois Central line operated under trackage rights. The commission authorized abandonment of this

13.81-mile segment and of the operation over the IC.

Southern.—This road will spend \$1,500,000 to enlarge and improve its box-car rebuilding facilities at Hayne Car Shop, near Spartanburg, S. C.

Texas & Pacific.—Ten sidings between Big Spring, Tex., and Baird will be lengthened to 8,000 ft each.

Securities

Atlantic Coast Line.—Stock Split. This road has asked the ICC to authorize issuance of 1,646,854 additional shares of no-par common stock to accomplish a stock split on a three-for-one basis. For reasons of economy, the road advised the commission, it would not cancel the 823,-427 shares of no-par common now outstanding, but would give to holders of that stock two additional shares of the new issue for each one held. The road stated that it will have to amend its presently authorized stock limit of 1,350,000 shares to increase it to 4,-000,000. A primary effect of the split the ACL application said, would be to "promote wider distribution of the

Springfield Terminal.—Stock Dividend.—The ICC has authorized this road to issue 1,000 shares of previously authorized \$100-par common stock as a dividend to the Boston & Maine, sole owner of all the ST's outstanding capital stock (Railway Age, October 11, page 12). The commission's authorization was expressly conditioned on a requirement that none of the preferred stock now held in ST's treasury be issued without ICC approval. The ST previously redeemed all its outstanding preferred stock from the B&M, total par value \$82,500, and holds it in its treasury.

Authorizations

CHICAGO, BURLINGTON & QUINCY.—To assume liability for \$4,800,000 of equipment trust certificates to finance in part freight and passenger train cars costing an estimated \$6,040,000 (Railway Age, December 20, page 39). Division 4 approved sale of the securities at 2%% interest for 99.4793%—the bid of Salomon Bros. & Hutzler and three associates—which will make the annual cost of the proceeds to the road approximately 2.71%. The certificates were reoffered to the public at prices yielding from 1.25 to 2.8%, according to maturity.

1.25 to 2.8%, according to maturity.

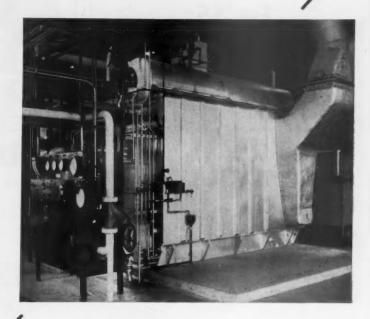
CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.

—To assume liability for \$7,200,000 of equipment trust certificates to finance in part 74 diesel-electric locomotives costing an estimated \$9,121,371 (Railway Age, November 29, page 13). Division 4 authorized sale of the certificates at 2½% interest for 99.56—the bid of Halsey. Stuart & Co. and 12 associates—which will make the annual cost of the proceeds to the road approximately 2.94%. The certificates were reoffered to the public at prices yielding from 1.4 to 3%, according to maturity.

MISSOURD PACIFIC—To assume liability for

MISSOURI PACIFIC.—To assume liability for \$4,575,000 of equipment trust certificates to finance in part 36 diesel-electric road-switching locomotives costing an estimated \$5,780,404 (Railway Age, December 20, page 39). Division (Continued on page 196)

A Package Boiler With Many Advantages



The Type "VP" Package Boiler is the most widely used design in industrial boilers with capacities of from 4,000 to 40,000 lb. of steam per hour.

Principal features of the Type "VP" Package Boiler are:

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All Types, of Steam Generating Fuel Burning and Related Equipment

Forecast For '55:

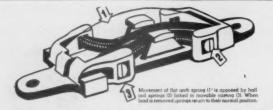
Every year, thousands of progressive companies join the family of Railway Express shippers.

Indications are that in the year ahead an even greater number of organizations will switch to fast and ever-dependable Railway Express Service.

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40 Ton Steel Sheathed Box Cars 50 Ton All Steel Gondolas 70 Ton All Steel Gondolas 8000 Gal. Tank Cars Cl. III Coiled—Non Coiled

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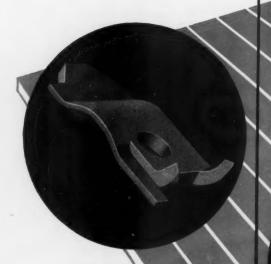
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FOR NEW CARS: Simplifies construction — permits uniform length floor boards, replaceable without disturbing the grain strip or side lining.

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MACLEAN-FOGG LOCK NUT COMPANY

Securities

(Continued from page 193)

4 approved sale of the certificates at 2%e% interest for 99.3799—the bid of Halsey, Stuart & Co. and four associates—which will make the annual cost of the proceeds to the road approximately 2.96%. The certificates were re-offered to the public of prices yielding from 1.65 to 3%, according to maturity.

1.65 to 3%, according to maturity.

SEABOARD AIR LINE.—To assume liability for \$5,010,000 of equipment trust certificates to finance in port 900 50-ton box cars and 100 70-ton hopper cars costing an estimated \$6,701,496 (Railway Age, December 20, page 42). Division 4 approved sale of the securities at 2-56% interest for 99.433—the bid of Salomon Bros. & Hutzler and three associates—which will make the annual cost of the proceeds to the railroad approximately 2.71%. The certificates were reoffered to the public at prices yielding from 1.3 to 2.725%, according to maturity.

Application

MISSOURI PACIFIC.—To assume liability for \$3,900,000 of equipment trust certificates to finance in part the following diesel-electric locomotives costing an estimated \$4,951,966t Estimated One Construction and Builder Unit Cost Unit Cost Motive Division, General Motors (Electro-Motive Division, General Motors (Corporation) \$166,321

Dividends Declared

CINCINNATI INTER-TERMINAL.—4% preferred, \$2, semiannual, payable February 1 to holders of record January 20.

If you would like facts and

figures to meet your needs,

just write or call our Findlay

office. You'll get prompt, ex-

pert help with your haulage

problems, large or small.

DETROIT & MACKINAC.—5% preferred, \$5, payable January 15 to helders of record January 4.

Security Price Averages

Average price of 20 representative railway stocks 86.20 85.94 57.94 Average price of 20 representative railway bonds 98.10 97.59 91.18

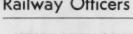
Railway Officers

ASHLEY, DREW & NORTHERN.

CANADIAN PACIFIC.—S. J. W. Liddy, assistant comptroller, has been

P. G. Watts, traveling freight agent at Boston, has been named district freight agent at Portland, Me., succeeding A. E. Gorman.

CHESAPEAKE & OHIO.-E. A. Kuhn, superintendent motive power and equipment at Grand Rapids, has been made general superintendent motive power and machinery, at Richmond, Va., with general supervision over all locomotive and car matters for the system. His old position has been abolished. E. C. Ellis, superintendent car department, Southern region, has become general superintendent car department, with system-wide supervision over all car matters. The jurisdiction of C. D. Allen, superintendent motive power, Southern region, has been extended to include the entire system. E. R. Hauer has



-W. B. Anderson, president and general manager, has been elected chairman of the board to succeed Adam Trieschmann, who has retired, following more than 40 years of service. Robert R. C. Miller, vice-president, succeeds Mr. Anderson as president.

appointed deputy comptroller.

been appointed general mechanical en-



LOUISVILLE & NASHVILLE .- As reported in Railway Age December 6, W. Andrew Coe has been elected treasurer at Louisville, Ky.



"Differential is my kind of car"

"I like the way they stand up under the punishment of that braiser of a shovel. Ununusally rugged construction does it. Somehow they seldom turn up for roll call at the shop. And out at the stockpile or dump they come clean. That 50° dumping angle is the answer. Dumping to either side is important, too."

This kind of talk from an increasing number of users is convincing. For nearly 40 years Differential Haulage Equipment has been doing a pace-setting job.

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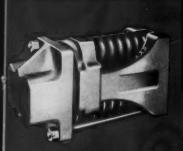






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gineer and P. J. Finch, assistant superintendent motive power—diesels, their former positions having been abolished. All will have headquarters as before, in Richmond. E. E. Slack, supervisor work simplification, has been made assistant superintendent motive power—work simplification and personnel, remaining in Huntington, W. Va. His former position has also been abolished. The following also have been given system jurisdiction, headquarters remaining in Richmond: A. H. Glass, chief power and fuel supervisor; J. R. Brooks, supervisor lubrication and supplies; R. J. Dewsbury, gener...l air brake inspec-

tor; D. F. Dunsmore, electrical engineer; and J. B. Roman, shop engineer.

DELAWARE & HUDSON.—C. H. House, division superintendent at Oneonta, N.Y., has been appointed manager of personnel, at Albany, succeeding F. L. Hanlon, retired.

DETROIT, TOLEDO & IRON-TON.—Don M. Fishbeck, general agent, has been appointed assistant general freight agent at Dearborn, Mich., succeeding Edward J. Murphy, who retired December 31 after 30 years of service. A. H. Westphal has been named assistant to general freight agent.

EASTERN RAILROADS (Trunk Line-Central Passenger Committee).—Anthony J. Winkler, vice-chairman, has been appointed chairman, to succeed Vanderbilt Armold, who retired January 1 (Railway Age, December 20, page 43).

ERIE.—Frank W. Davison has been appointed general agent at Peoria, Ill., succeeding K. O. Hemming, promoted (Railway Age, December 27).

GREAT NORTHERN. — M. C. Anderson, assistant to vice-president at St. Paul, retired December 31 after 49 years of service.

LACKAWANNA.—Fred Diegtel, general superintendent, has been appointed assistant general manager, with responsibility for operation and personnel. His former position has been abolished. A. M. Bimson, assistant general manager, personnel, has been appointed assistant to vice-president. W. G. Dorsey, superintendent at Scranton, has been named manager of transportation, at New York. R. M. Jones, superintendent at Buffalo, has been transferred to Scranton, Pa., and has been succeeded by R. A. Carroll,



Fred Diegtel

trainmaster at Buffalo. J. E. Mahoney, superintendent of transportation at New York, has been appointed assistant superintendent at Hoboken, and Carl E. Frenzel, supervisor of stations and transfers, has been appointed manager of motor service at Hoboken, their former positions having been abolished. E. J. Whalen, trainmaster at Scranton, has been transferred to Buffalo.

Donald R. Creighton, general attorney, has resigned to return to private practice of law.

LEHIGH VALLEY. — M. J. Ormond, freight traffic manager, has retired. William A. Grove, assistant freight traffic manager, has succeeded him with the title of general freight traffic manager. J. J. Connell, as-



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McWILLIAMS BALLAST DISTRIBUTOR

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With the entire weight of the machine on tamped track, it compacts ballast firmly under the rail and for a controlled distance on either side of the rail.

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GALVESTON BEAUMONT
TEXARKANA

sistant freight traffic manager, has been appointed freight traffic manager; C. G. Labus, assistant general freight agent, has become assistant freight traffic manager, and B. J. Hayden,



W. A. Grove

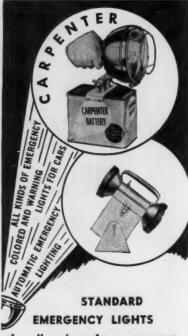
district freight agent, has been named general agent. Mr. Grove was in the employ of several railroads, including the LV, prior to service with the U. S. Navy during World War I. He returned to the LV as commercial agent at Philadelphia during 1925, and held several positions at Newark, N.J., and New York prior to his appointment, in 1948, as assistant freight traffic manager.

LONG ISLAND. — Frank Aikman, Jr., engineer maintenance of way at Jamaica, N. Y., has been appointed chief engineer there, succeeding J. M. Nicholson, retired. A native of Brooklyn, N. Y., Mr. Aikman went to work for the New Jersey State



Frank Aikman, Jr.

Highway Commission after his graduation from Lafayette College (B.S. in C.E.) in 1932, In 1934 he joined the Pennsylvania as assistant on engineering corps, and the following year went to the LI in the same capacity. Returning to the PRR in 1936, Mr. Aikman served as assistant supervisor track and supervisor track, successively. He resigned in 1946 to enter



in railroad use for many years

Type F-5, Sturdy PORTALITE

Double filament bulb for work light or mile range searchlight. (Type S-6, same with rechargeable battery. Type FF-5, same as F-5, with flashing red warning light at rear of handle.) Finest light for emergency repair crews, yard work, and many other uses.

Type TNT—2-way Flood and Searchlight

Gives a 10 ft. spot of even light for pole work, or adequate work light on the ground. Range 1/5 mile. Sturdy, rustproof steel case, heavily enameled. Focusing knob. Provides railway telephone, telegraph and signal repair crews with the same light used by telephone company repair crews.



Type J-24, Battle Lantern

Time-tested and trusty 2-ce . sturdy cast aluminum lantern, standard for years for railroad motor car head-lights and emergencies. Instant battery replacement, no screws. Waterproof. Focusing screw, Hanging bracket available.

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BOSTON 45 - SOMERVILE, MASS,

When the Market of Allender Hell Century."

the food processing business, and two years later became associated with the Railroad Siding Construction Company of Pittsburgh. Mr. Aikman has been engineer maintenance of way of the LI since July 1949.

W. A. Thomson, track supervisor, has been promoted to engineer of track; Harold Raver, engineer of structures, has been named engineer bridges and buildings, and Donald Dana, field engineer, becomes assistant engineer in charge of field forces.

MAINE CENTRAL-BOSTON & MAINE.—Arrangements between these roads for employment of joint operating and mechanical department officers and personnel, in effect since 1933, will be terminated February 1. Separation of the operating and mechanical departments has been planned for some time and "is simply a move to step up efficiency of both roads," E. Spencer Miller, MC president said. He added there is no foundation to rumors of an impending consolidation between the MC and any other railroad or railroads. The MC and B&M cooperate in employment of joint officers and personnel in accounting, purchasing and tariff and rate work.

MILWAUKEE.—Oren R. Anderson, traveling passenger agent, has been named district passenger agent at Chicago. Victor L. Hitzfeld, general agent—passenger department at Chicago, retired December 31 after 45 years of service.

As reported in Railway Age December 6, Gerald M. Ryan has been appointed freight traffic manager—rates and divisions at Chicago. Mr. Ryan



Gerald M. Ryan

joined the Milwaukee in 1915. After holding a number of minor positions in the freight traffic department he became assistant general freight agent in 1938, and has subsequently been general freight agent and assistant freight traffic manager.

NEW YORK CENTRAL.—C. B. Bronson, assistant chief engineer maintenance of way, has retired. C. T. Popma, assistant division engineer at (Continued on page 204)



LET US take care of your repair parts needs.

CASTINGS

processed in our

Modern Pyrometer-Controlled Oven Under A.A.R.-Approved Standards

We also repair, rebuild, and maintain tank cars and other freight cars.

A modern shop regularly inspected by A.A.R.

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If you believe with millions of other Americans that there is no safer investment than U.S. Savings Bonds-

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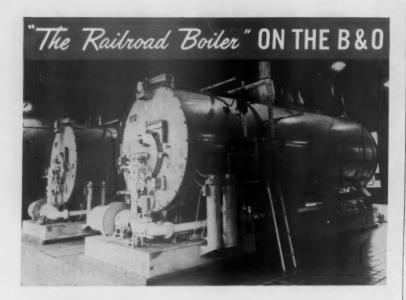
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Completely automatic, "The Railroad Boiler" provides an unfailing supply of dependable heat and process steam at better than 80% thermal efficiency (guaranteed). This modern package boiler is available in single units from 10 to 600 hp. Design pressure — 15 to 200 lbs. Higher pressures on special order.

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Exclusive Distributors to the Railroads
Engineering, Sales and Service

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Railway Officers

(Continued from page 201) Cleveland, has been appointed industrial engineer at New York.

Frank B. Ivers has been appointed assistant to passenger traffic manager at Chicago, succeeding Peter F. Donlevy, retired.

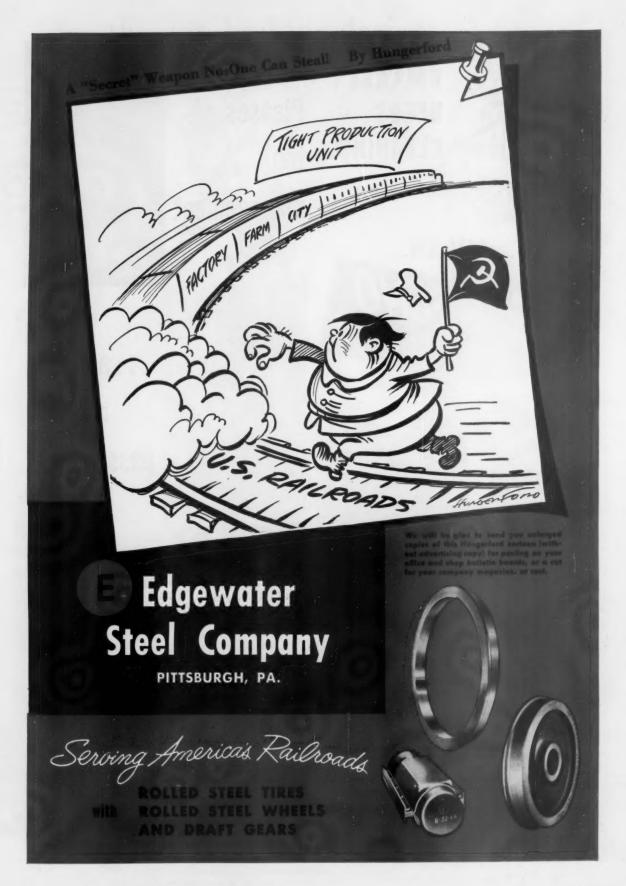
PENNSYLVANIA.—George Shimrak, assistant foreign freight agent at New York, has been promoted to foreign freight agent, and Wesley M. Anthony, chief clerk to freight traffic manager at New York, has been promoted to district freight agent at Newark, N. J.

READING.—J. W. Stewart, general coal freight agent, has been appointed coal traffic manager, his former position having been abolished. R. G. Dunn, coal freight agent, has been made coal freight agent—sales, and J. D. Grier, commercial coal agent, coal freight agent—rates.

VIRGINIAN.—J. S. Branch, traffic manager, has been appointed general traffic manager, with headquarters as before at Norfolk, Va., succeeding H. C. Mitchell, who has retired after more than 34 years of service. The position of traffic manager has been abolished, A. F. Schafhirt, assistant freight traffic manager, has been named assistant to general traffic manager at Norfolk. J. F. Smith, general freight traffic manager (rates and divisions); J. H. Christoph, general freight and passenger agent, has been named assistant freight traffic manager (sales and service), and W. R. McClelland, general agent at Roanoke, has become assistant freight traffic manager (sales and service), all at Norfolk. L. E. Brett has been appointed assistant general freight agent at Norfolk, succeeding J. Schmuck, Jr., who has (Continued on page 208)



ROCK ISLAND.—E. G. Roberts, general purchasing agent, who has been appointed manager of purchases and stores at Chicago (Railway Age, November 29, page 18).



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SPENO contract service eliminates capital investment.by Railroads in this single-operation equipment.

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... as well as tiny passengers

Automatically operated doors make a world of difference in passenger convenience. They open with the greatest of ease... at the lightest touch... then close smoothly and quietly.

To management, automatically operated doors offer continuing economy. They reduce loss of heat, help air conditioning systems work more efficiently and require very little maintenance. As a result, they soon repay their low initial cost.

National Pneumatic Co., Inc., makes end door operators for both swing and sliding doors. These units are used by nearly every major railway system — on both new and reconditioned coaches — for economy, convenience and safety!

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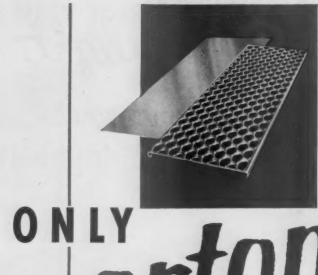
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Railway Officers

(Continued from page 204)

been promoted to general freight and passenger agent (rates, divisions and passenger traffic matters). A. E. Suter, coal freight agent at New York, succeeds Mr. McClelland as general agent at Roanoke. Lawrence T. Forbes, coal traffic agent at Norfolk, has been appointed general agent, traffic and transportation departments, at Beckley,



J. S. Branch

W. Va., succeeding H. D. Etheridge, who succeeds Mr. Suter as coal freight agent at New York. Ralph A. Wilson replaces Mr. Forbes as coal traffic agent at Norfolk.

Harry Leard, engineer maintenance of way at Roanoke, has been appointed engineer maintenance of way—assistant

Harry Leard, engineer maintenance of way at Roanoke, has been appointed engineer maintenance of way—assistant chief engineer at Norfolk, succeeding H. G. Adams, assistant chief engineer, retired. C. W. Gabrio has been appointed engineer of structures at Norfolk. The position of bridge engineer, formerly held by Mr. Gabrio, has been abolished.

WABASH.—E. C. Perkins, general agent, freight department, at Pittsburgh, has been appointed general freight agent at St. Louis, succeeding J. R. Hundley, who has retired after 45 years of service. Richard K. Clarahan replaces Mr. Perkins.

OBITUARY

A. E. Voigt, retired car lighting and air conditioning engineer of the Santa Fe, died in December at Topeka, Kan.

L. Clayton Walters, 64, assistant to vice-president, signal and electrical, of the Southern, died in Doctors Hospital, Washington, D. C., January 2.

Richard Holland Johnston, 86, who retired March 1, 1947, after serving as librarian of the Bureau of Railway Economics, Association of American Railroads, for 37 years, died at Washington, D.C., January 2.

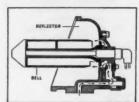
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HANCOCK AIR WHISTLE

for Diesel-Electric Locomotives



For safety's sake, more and more Diesel-Electrics are being equipped with the new Hancock Type 4700 Locomotive Air Whistle. It sounds exactly like the old familiar steam whistle, yet air consumption is so low, the efficiency of the air-

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The Hancock Locomotive Air Whistle has no moving parts—no adjustment possible or necessary. It always sounds the same pleasing 3-note chord. Carrying power is excellent. The bowl-like reflector stimulates air motion—amplifies the sound; swirls it out in all directions. The whistle can be heard clearly more than two miles away, yet is not objectionable to the human ear close by, nor injurious to the hearing of engine crews. Furthermore, those who live within the range of the Hancock Air Whistle prefer the call of the time-honored steam whistle it duplicates so precisely.

The new Hancock Type 4700 Locomotive Air Whistle culminates more than 50 years of experience in manu-

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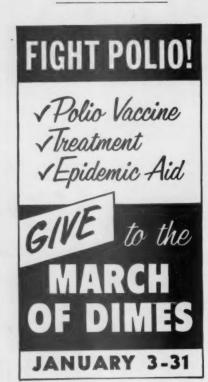
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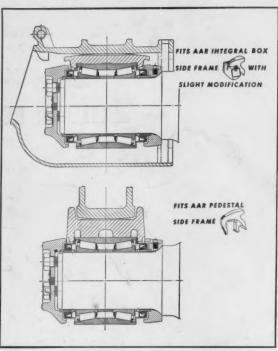
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